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June, 1975



Blue Jay

A JOURNAL OF NATURAL HISTORY AND CONSERVATION
FOR SASKATCHEWAN AND ADJACENT REGIONS

Published quarterly by the
SASKATCHEWAN NATURAL HISTORY SOCIETY
Regina, Saskatchewan.

CN ISSN 0006-5099

Editor: Bernard Gollop

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All items for publication should be addressed to
J. B. GOLLOP, 2202 YORK AVE., SASKATOON, SASKATCHEWAN, S7J 1J1.
Deadline for material to be considered for the September issue is
July 28, 1975

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THE LAST OF THE GREAT GRASSLANDS*

Story and photos by CLAUDE MONDOR

... that country is notable primarily for its weather, which is violent and prolonged; its emptiness, which is frighteningly total; and its wind, which blows all the time in a way to stiffen your back and rattle the eyes in your head".

WALLACE STEGNER, "Wolf Willow"



... rings such as this can be found along valley rims and bottoms throughout the Canadian Plains.

When a young fur trader by the name of Henry Kelsey travelled southward from Hudson Bay in 1690, he emerged from several hundred miles of treacherous rivers and forests to become the first European to see the

immensity of the Canadian plains. He notes in his diary for August 19 that "... this plain affords nothing but short round sticky grass and Buffalo (sic), and a great sort of a bear which is bigger than any White Bear, and is neither white nor black, but silver-haired, like our English rabbit. Ye Buffalo likewise is not like those to ye Northward, their horns growing like an English ox, but black and short." Later, while travelling across the open

from Conservation Canada, Vol. 1, No. 3,
Ottawa, Ontario.
A 0H4

prairie, he described the plains as "barren ground, it being very dry heathy land and no water, but here and there small ponds."

To Kelsey, the west was an empty wilderness, a negative illusion of the Canadian Plains which still runs through the minds of many Canadians. Viewed personally and historically however, that almost featureless prairie glows with color.

Before Canada's Confederation in 1867, the Canadian plains, the lands rolling westward from the Red River in Manitoba to the foothills of the Rockies in Alberta and northward from the U.S. border to the forest lands, were primitive.

They were as thousands of years of geological and climatic evolution had made them. Grasses clothed the bareness of land and softened the beat of wind and rain; the prairie fires ran in the wind; the bison, elk and pronghorn grazed through the changing colours of the seasons.

Rivers flowed to distant seas unchecked. Across empty miles the wind whistled, turning over every blade of grass, every pale primrose, in search of whatever it is looking for, and blew the hawks and song birds about the sky. The sky was the biggest anywhere, a light pure transparent blue, across which moved navies of cumuli, fair-weathered clouds, their bottoms parallel to the earth's surface. The air was clean, there was no haze, the horizon — a clean line a dozen miles away.

Primitive, but not uninhabited Man had barely touched them, for man himself was primitive, in that he had adapted himself to the ecology, and not the ecology to himself. One could not travel for long on these grasslands without seeing the Plains Indian and his works. Early travellers were particularly impressed by the way the bison provided most of the materials



The prairie crocus is common in open prairie and hills. Sheep may be poisoned by this plant and their digestive system may be impaired by the felty hairs.

required for his needs: with the skins he clothed himself, built his teepees, made ropes and obtained wool; with the sinews he made threads; from the bones he shaped awls; the dung he used for firewood; the bladders he used as jugs and drinking containers.

Particularly impressed was George Catlin, an artist and writer, who in 1842 advocated that the entire plains region be set aside as a National Park to preserve both the buffalo and the Indians who depend upon them for their livelihood. As he notes in his book detailing his adventures amongst the North American plains Indians —

"And what a splendid contemplation too, when one (who has travelled these realms, and can duly appreciate them) imagines them as they might in future be seen, (by



Plains Indian rock cairn on the Suffield Military Reserve. Located on a high promontory, it forms the centre of a 'medicine wheel' and is connected to a circle of stones over 100 feet in diameter by radiating spokes of straight lines of stones.

me great protecting policy of government) preserved in their pristine beauty and wildness, in a magnificent park, where the world could see for ages to come, the native Indian in his classic attire, galloping his wild horse, with sinewy bow, and shield and lance, amid the retreating herds of elks and buffaloes. What a beautiful and thrilling specimen for America to preserve and hold up to the view of her refined citizens and world, in future times! A nation's Park, containing man and beast, in all the wild and freshness of their nature's beauty!"

He was too far ahead of his time to be taken seriously. None of his readers had heard of a "National Park", or the preservation of wilderness for the future. It would take another 30 years before Yellowstone would be

established as the first National Park.

The plains remained archaic or neo-archaic until a century ago because they were isolated, even more isolated than the Arctic Ocean is today. This isolation was to end; the already dwindling bison herds were only an anticipation of what was inevitable. The end of the plains ecology and plains Indian culture can be dated exactly: the signing of Confederation in 1867. As W. L. Morton, a leading Canadian historian noted: "Confederation was, in part only, but also in essential fact, a prelude and preparation for the annexation of the prairies to the Canadian version of continental integration". Yet, merely 30 years after that crucial date, the railway, the town, agriculture from the east, ranching from the south, industry and modern civilization followed — the

plains had been domesticated, the emptiness occupied.

The fruits of modernization of the plains awaits any tourist who travels the Trans-Canada Highway between Winnipeg and Calgary. Mile after weary mile he is greeted by the all pervasive checkerboard texture of black summerfallow alternating with an ocean of wind-troubled grain fields, interrupted occasionally by ship-like farm buildings, of shelterbelt trees, and regularly spaced towns with their towering red and orange elevators that seemed to be differentiated in name only.

Unnoticed, to the travellers eye however, are the more subtle and far reaching effects of this thrust of settlement. Creature after creature of the plains — each a unique and irreplaceable work of eons of years of evolution — has declined since the prairies were annexed to the rest of Canada. Some have been the victims of heedlessness and greed: the seemingly endless flocks of Eskimo Curlew were slaughtered with grim efficiency because there was "sport" or money in it. Others have been exterminated because of real or imaginary threats to the interests of men: the striking



Writing-on-Stone Provincial Park is an area of mystery and beauty. A holy place to the Blackfoot Indians, it contains many priceless pictographs as above, some of which were carved upon the rocks before the white man had ever seen the waters of the Milk River.

beautiful "white" race of plains wolf and the huge and powerful plains grizzly, the last of which was painted by John James Audubon in 1843. Other species of Canadian Plains fauna teetered on the brink of extinction — the plains bison and the pronghorn antelope, the sole living mammal which is distinctive to North America.

In more recent years, environmental contamination by chemical pesticides and the decline of suitable habitat, have become factors in the further dwindling of the plains wildlife resources. The Prairie Falcon and

other grassland birds of prey are becoming increasingly rare because of the cumulative effects of pesticide poisons derived from their prey. The shy little kit fox with his big ears living on kangaroo rats, ground squirrels and grasshoppers, faces an uncertain future for he has fallen victim to the traps and poisoned baits set out for the coyote. The black-footed ferret, never very common, has become perhaps the rarest of all our mammals with the continued destruction of the prairie-dog colonies on which it depends for both shelter and food. The prairie-dog itself is also in peril of extermination



Erosion has removed the thin cover of glacial till of the Killdeer badlands in southwestern Saskatchewan, exposing the underlying sediment to further erosion and creating bizarre-shaped landforms.



Wayne Ridsdal

in Canada. Restricted to a few colonies in the valley of Frenchman River southeast of Val Marie, Saskatchewan, it is often shot for sport or poisoned by the ranchers who allude that they compete with his livestock for available forage.

The impact of modern civilization on the Canadian Plains has been devastating. The bulk of the great central grasslands has disappeared past recall. The plow has broken the deep prairie sod and turned its store of riches to the production of wheat: domestic cattle now roam the range where the great bison and pronghorn herds once grazed. Towns and cities linked by railroads and highways now cluster the Canadian plains, and only names are left to remind us that this was once a different country.

Despite the progress, there still remains a number of areas where remnants of the Plains, as an ecology, as a native Indian culture, can be viewed and appreciated in a relatively un-

disturbed state. The most extensive of these include the Suffield Military Reserve, the Milk River, Manyberries and Dinosaur Badlands areas in southeastern Alberta, and the Govenlock, Wise Creek and Val Marie-Killdeer areas in southwestern Saskatchewan. There, it is still possible to step into the past for a little while, to turn the clock back a century and experience the original grandeur and solitude that so awed the early visitors to the Canadian Plains. Here, it is possible to mentally reconstruct the details of the sketches drawn by Catlin, Parkman and Kane, although their subjects have gone forever.

Although there is yet an apparent abundance of undisturbed grassland - the need for protecting plains ecology is approaching urgency. All the remaining areas are being affected by human pressures and their quantity does not ensure the protection of an individual one.



A RECONNAISSANCE OF THE BIRDS AND MAMMALS OF THE CARIBOU MOUNTAINS, ALBERTA

E. OTTO HÖHN* and RODNEY D. BURNS**

ABSTRACT

Field work with collecting, in the Caribou Mountains in the summer of 1973 and 1974, established the presence of 84 species of birds. The most interesting of these were Red-throated Loon, Northern Phalarope and Gray-cheeked Thrush. All three were seen in circumstances which strongly suggested local breeding. Breeding records for the Surf Scoter and Red-breasted Merganser were also obtained.

Sixteen species of mammals were recorded. This included heather voles, which were trapped, and observations of river otters and caribou.

The Caribou Mountains of northern Alberta are an isolated high plateau with a number of large and small lakes. The center of the area lies about 100 miles northeast of the settlement of Fort Vermillion. The plateau extends for about 50 miles from north to south and for almost 90 miles from east to west. Its altitude exceeds 3,100 feet in some places and a considerable area is over 3,000 feet high. No zoological field work has, to our knowledge, been

carried out in this area apart from some entomological work on the southern slope of the plateau and on Foggy Mountain on its southern rim, carried out in July 1970 by Drs. F. H. Gooding and B. S. Henning of the University of Alberta.

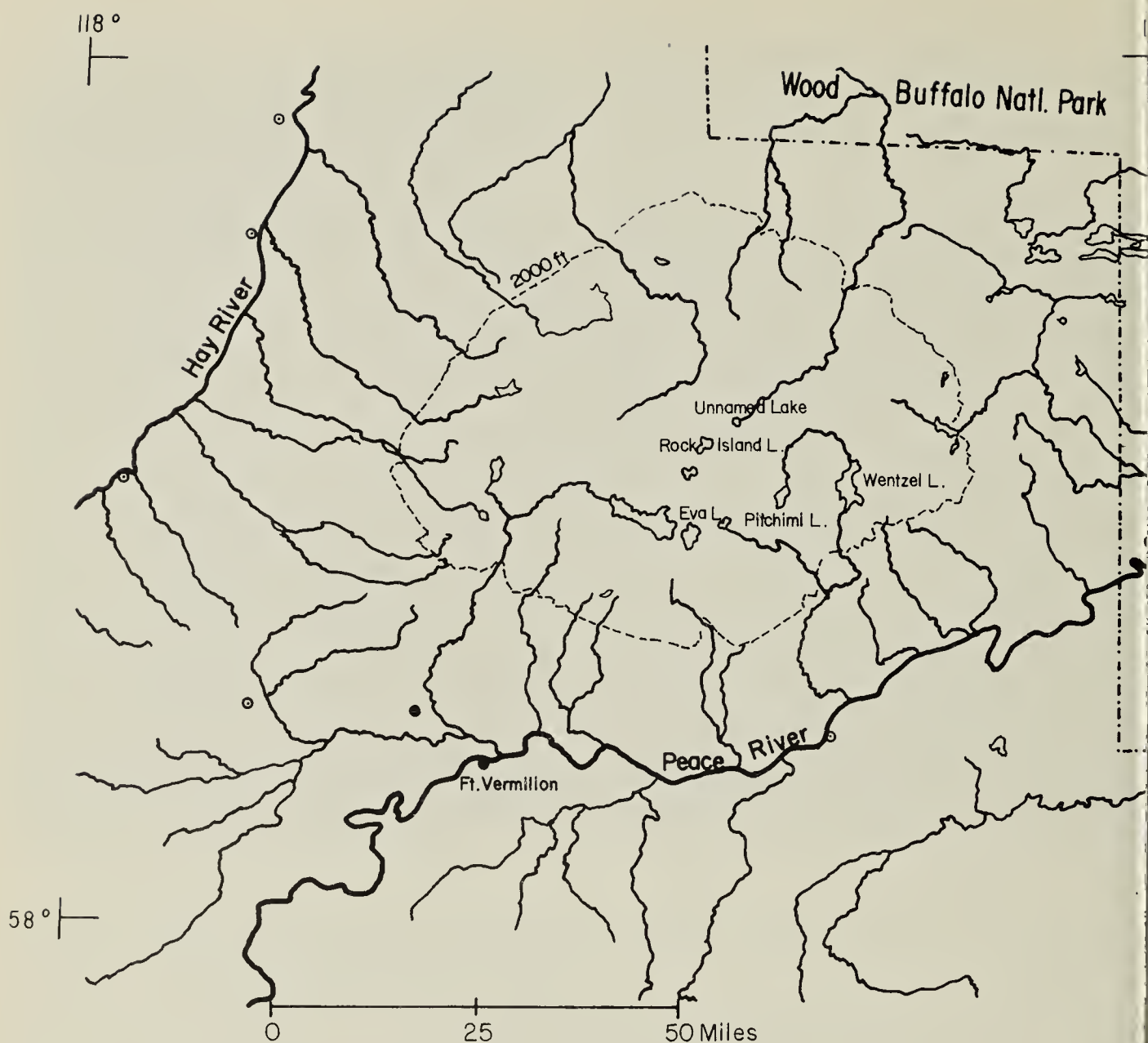
Owing to its altitude at a latitude of 59°, it was felt that the plateau might well harbour some birds of otherwise more northern breeding distribution. This was borne out in 1973 by the finding of Red-throated Loons, Gray-cheeked Thrushes and a Northern Phalarope.

Almost as striking was our failure to observe in this area a number of birds which are common in summer in northern Alberta as a whole, either in 1973 or 1974.

The absence of the House Sparrow and of Starlings is presumably related to the lack of year-round human inhabitants. Other absentees from our bird list are the Red-tailed Hawk, Marsh Hawk, American Coot, Killdeer, owls other than the Great Horned and woodpeckers other than the Common Flicker, Black-capped Chickadee, wrens and the Long-billed Marsh Wren, Red-winged Blackbird and Leicote's and the Clay-colored sparrows. Their absence on the plateau can in most cases be explained as due to the lack of certain habitats, eg. true marshes, grasslands of any extent, and the scarcity of tall timber.

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Sketch map of the Caribou Mountains showing the lakes named in the text.

Itinerary

Between us we spent 7 weeks in this area in the summers of 1973 and 1974. Our itinerary is given in some detail so that future workers who may wish to concentrate on areas we did not traverse can identify the areas we covered on large scale maps. Two of the larger lakes visited are not named on maps. They are: Rock Island Lake (so named by forestry service personnel), a lake 2 miles long from north to south and about as wide lying 6 miles northeast of the eastern end of Margaret Lake into which it drains by a creek, and Unnamed Lake about 1-1/2 miles long lying 6 miles north-northeast of Rock Island Lake and

draining into the Buffalo River.

As there are no roads in the area, float-equipped aircraft of the Pe Air Company were used to reach all to return from the lakes selected camp sites.

In 1973 E. O. Höhn, accompanied by P. Marklevitz, camped on Eva Lake and then stayed at the fish camp Margaret Lake from June 6 to 10. The two more northern of the four islands in Eva Lake were visited, as well as a small lake northwest of Eva Lake, the northeastern portion only of the shore of Margaret Lake, and a small lake 1 mile north of the fish camp.

From June 26 to 28 the same observations

rs were camped on the western shore of Rock Island Lake and visited a small lake 1 mile west of this lake and an islet off its southwestern shore. They were then flown to Margaret Lake where they stayed until June 30, visiting the small lake mentioned above and two others which lie about a mile north of the eastern shore of Eva Lake.

In 1974 R. D. Burns, accompanied by D. Sept, were at Unnamed Lake from June 18 to 25 and also visited a smaller lake close by to the east. From June 26 to July 7 they were camped on the east shore of Pitchimi Lake and explored two islands in this lake. From July 8 to 15 they were camped on the west shore of Wentzel Lake.

E. O. Höhn and P. Marklevitz camped on the west shore of Rock Island Lake from July 15 to 20; they visited the small lake to the west as well as two others about 1 and 2 miles respectively to the southwest along the creek draining the lake.

Habitats

Forests of stunted black spruce, their lower branches hung with grey snea lichens without deciduous undergrowth but with a floor of lichens and patches of sphagnum moss, cover the most extensive areas. Reindeer moss (*Cladonia rangifera*) was the most widespread lichen but *Cladonia mitis* and *Cladonia coccifera* as well as *Strararia nivalis* were also collected. Patches of more luxuriant forest with admixture of birch, white spruce and lodgepole pine were noticed on islands in Eva Lake and on the shores of Pitchimi and Wentzel Lakes. Former burns had produced more open areas with only scattered young spruce on a bed of lichens or in some places extensive growth of labrador tea. Willow and alder thickets were found along lakes and creeks. Meadows were small and scarce but were seen on

cleared ground about the Margaret Lake fish camp; some of the seismic trails were grass-grown and some islands in lakes had grassy areas. Emergent water plants in shallow portions of some lakes produced an approximation to marsh vegetation. Segments of the shores of some of the larger lakes have narrow sandy beaches and shore-line areas of alders growing out of a mat of bearberries.

SYSTEMATIC LIST

In the list which follows, an asterisk preceding the species name indicates that one or more specimens were collected locally. All bird specimens obtained are in the Provincial Museum of Alberta at Edmonton, as are those of mammals taken by R.D.B.; E.O.H.'s mammal specimens are in the collection of the Department of Zoology of the University of Alberta. Except in the case of the White-crowned Sparrow, the subspecific identity of the specimens has not been established and trinomials have therefore been used only in that instance. The names of species not observed by either author but included on the basis of local information, mostly obtained from Mr. George Grimm of Manning, Alberta, who has owned the sport fishing camp at Margaret Lake for a number of years, are placed in parentheses. Species names are from the A.O.V. Checklist and supplement.^{1 2}

The names of the larger lakes about which most observations were made are indicated by the following abbreviations: Eva — E; Margaret — M; Pitchimi — P; Rock Island — R; Unnamed — U; Wentzel — W. The phrase "all large lakes visited" refers to these lakes as a whole. The altitudes in feet of these lakes, in ascending order, are: Wentzel — 2,150 approx.; Pitchimi and Unnamed — 2,500 approx.; Margaret — 2,725; Eva — 2,887; Rock Island — 2,950 approx.

BIRDS

COMMON LOON. Seen on all the large lakes visited, as many as nine being in sight together on one occasion; single birds seen also on some of the smaller lakes. One flushed from a nest with two eggs on the narrow terminal spit of an island in E lake June 8/73.

RED-THROATED LOON. Not previously recorded in Alberta during the breeding season (Salt and Wilk, 1966), though there is a breeding record for northern Saskatchewan (Nero, 1963). A few pairs evidently summer in the Caribou Mountains near R lake but proof of nesting has not yet been obtained. Two seen on a small lake near M lake and one encountered on a nearby trail June 9/73 but none here on June 26. One, at times two, R lake June 26-28/73 (Höhn and Marklevitz, 1974). In 1974 some seen daily on R lake July 16-19; on the evening of July 17 five in a display flight accompanied by *ka ka ka kwao* calls while another was swimming. Individuals were seen to leave R lake with a fish in the beak on two occasions; these and others too far to determine whether they carried prey, generally left the lake in the same southwesterly direction but no loons were seen on two smaller lakes in this direction which we visited.

RED-NECKED GREBE. One on a small

lake northwest of E lake June 8/73 and at least one, probably two, pairs on another small lake northeast of M lake June 29/73.

HORNED GREBE. Two near a nest on a small lake west of R lake June 28/73 and two on another small lake nearby on the same day. On July 16/74 two on the first mentioned lake.

WHITE PELICAN. One on W lake July 9/74.

MALLARD. A generally distributed breeding bird but not seen on W lake; scarcer than in lower-lying country; excluding downies maximum seen in one day. Females with downies seen near R and M lakes in late June 1973.

GADWALL. A pair seen on M lake June 8/73.

PINTAIL. A fully-feathered young bird on a lakelet near R lake on July 16/74.

GREEN-WINGED TEAL. There is probably a moderate, scattered breeding population. A few were seen on E lake June 1973 and others near R lake in the June of the same year as well as one on a small lake nearby. In June 1974 two single birds at P lake and a flock of 10 at R lake in mid-July.



An old burn near Rock Island Lake, typical habitat of the Gray-cheeked Thrush.

E. O. Hann

AMERICAN WIGEON. A thinly distributed breeding bird. A few on E lake early June 1973. Next year two females seen at U lake and a female flushed from a nest with nine eggs on June 18; on July 2 a male with a single young seen at P lake.

GREATER SCAUP. A number of these seen on several waters in June 1973 and July 1974 seemed to E.O.H. and his companion to show the wing pattern of this species when in flight. As no specimens were collected, their identity was not established. The map of the breeding range given in Godfrey³ shows it as extending well south of Great Slave Lake — breeding of this species in the Caribou Mountains is not improbable.]

LESSER SCAUP. Seen at all larger lakes visited except W lake and also seen on some smaller lakes. On a lake about a mile long, lying northeast of the east shore of M lake, there were over a hundred of these ducks, males greatly in excess, on June 10/73.

COMMON GOLDENEYE. Scarce, possibly because of the rarity of trees large enough to carry nesting holes. A pair was on M lake on June 7 and a female only on June 29/73. A lone female on R lake on June 29/73 and a male on P lake on July 7/74.

BUFFLEHEAD. This tree-nesting duck is evidently also scarce but proof of breeding was obtained. Seen in small numbers on all larger lakes visited except E lake; greatest number observed was a group of about twenty, mainly males, on a small lake northeast of the eastern end of M lake on June 20/73. A female with five downies on a pool near P lake on July 5/74.

GLDSQUAW. On June 30/73 a male and a female flew past E.O.H. and his companion, about 35 yards away, along the shore of a small lake a mile due east of the lake fish camp. The male was in full breeding plumage and gave the characteristic spring call. These were presumably non-breeders which had not completed their spring migration.⁴

WHITE-WINGED SCOTER. Recorded only in the M lake area; a male on a small nearby lake June 9 and a group of seven of both sexes on another small lake on June 10/73.

SURF SCOTER. As Salt and Wilk⁶ state that there is no Alberta nesting record, though it probably breeds in the Lake Athabasca region on the basis of June and July occurrences, the breeding record below is of interest. Common on all larger lakes visited as well as on some of the

smaller lakes. A female with four young on a muskeg pool near W lake on July 9/74.

COMMON MERGANSER. Well distributed in small numbers, may breed. Seen on P, W, and R lakes; as many as seven males and a female in a group on the first-named lake on June 28/74. A male followed by a file of downy young on W lake on July 10/74; as males normally desert the females during incubation these downies were not necessarily those of the male seen with them or even of his species.

***RED-BREASTED MERGANSER.** Fairly well distributed in small numbers; breeds locally, a point of interest as Salt and Wilk⁶ state there are no unequivocal breeding records for Alberta. Seen on E, M, and P lakes. At P lake a female flushed off a nest with eight eggs beneath a fallen log on a small island on July 2/74.

GOSHAWK. A nest with three well-feathered young found 25 feet high in a white poplar in a stand of mature trees of this species at W lake on July 8/74; no adults were seen near the nest but single adults referred to it were seen in the area two and three days later.

BALD EAGLE. Seen on all larger lakes visited and probably breeds on all of them. A nest which had evidently been used that year, for egg shells were found beneath it, was seen on an island in E lake on June 8/73. An unoccupied nest was found on an island in P lake on July 2/74.

OSPREY. There are probably several breeding pairs in the area. Two were seen at M lake on June 10/73 and fishermen told us that a pair had nested a few years earlier at W lake. At R lake one was seen daily and sometimes twice daily from July 16-19/74 fishing in the lake. It repeatedly left with a fish in its talons, disappearing between the shore-line trees and no doubt had young in the nest not too far off. One was seen by a smaller lake about 2 miles from R lake on July 18 of the same year.

AMERICAN KESTREL. Single birds seen at M, U, P, and W lakes; on one occasion two were in sight at the latter locality.

SPRUCE GROUSE. Breeds but distribution very local in the two years of our observations. G. Grimm told E.O.H. there were always a few about. None were seen about E, M, and R lakes. At P lake a hen with six young on July 6/74 and another female with young at W lake in July of the same year.

[WILLOW PTARMIGAN. G. Grimm told E.O.H. that ptarmigan sometimes appeared in numbers about the M lake fish camp at

the time of the first severe cold of the winter, probably in November.]

COMMON SNIPE. Apparently local. One heard drumming at R lake in late June 1973; next day one seen near a smaller lake in that area.

SPOTTED SANDPIPER. There are evidently several breeding pairs on all of the larger lakes. Nests each with four eggs were found at M and R lakes in June 1973 and at P and W lakes in June and early July 1974.

SOLITARY SANDPIPER. Scarce. One near M lake on June 9/73 showed mild anxiety at our presence and another near R lake on July 18/74 showed definite anxiety and probably had young nearby.

GREATER YELLOWLEGS. Probably breeds in small numbers. Two attributed to this species between E and M lakes on June 8/73 and two others near R lake on July 18/74.

LESSER YELLOWLEGS. Widely distributed, breeds. Seen at all larger lakes visited except W lake, as well as on a number of the smaller lakes. On June 29/73 at a small lake near M lake there were two very anxious adults and two downy young.

BAIRD'S SANDPIPER. One present for most of the day on a sandy strip of shore at R lake on July 17/74.

***LEAST SANDPIPER.** Four at P lake on July 4/74; at W lake on July 14 of the same year a mixed flock of these and Semipalmated Sandpipers. One at R lake on July 18/74. There were no brood patches on two collected at W lake and these were presumably fall migrants from some fairly distant area.

***SEMIPALMATED SANDPIPER.** Two at W lake on July 10/74 and a somewhat greater number together with Least Sandpipers on July 14.

NORTHERN PHALAROPE. One seen June 28/73 on a small lake west of the west shore of R lake showed intense anxiety at our presence and probably had young nearby (Höhn and Marklevitz, 1974). No phalaropes were seen at this lake when it was revisited in July 1974. The only geographically comparable record is that of Nero³ for northern Saskatchewan.

***HERRING GULL.** Some seen at all the larger lakes visited. There is a breeding colony on an islet in R lake where about ten pairs of adults and at least four young were seen on June 28/73. There may well be other small nesting colonies in the area.

CALIFORNIA GULL. One at U lake on

June 21; seven over P lake on July 4, and one at W lake on July 8/74.

RING-BILLED GULL. One at M lake on June 10/73. It seems improbable that this or the preceding species nest in the area.

MEW GULL. One seen repeatedly at the fish camp on M lake on June 8, 10 and 28/73; several at E lake in early June of that year. At R lake two were seen on July 18/74. May well breed in the area since it occurs in the breeding season at other lakes in northern Alberta though the nearest known nesting colony is at Fort Smith.

BONAPARTE'S GULL. Widely distributed, evidently breeds. Some seen at all larger lakes visited as well as on a number of smaller ones. At several of the latter birds in couples or in small groups showed by their anxiety that they had young nearby.

***COMMON TERN.** Apparently breeds near or on the two largest lakes of the area seen on E, M, and W lakes. At a small lake northeast of M lake several terns were seen carrying fish to a grassy islet on June 30/74. Up to two dozen terns were seen in the area at times over an apparent colony on a small island in W lake in mid-July 1974.

BLACK TERN. Our only record is of two seen over a small lake near R lake on July 28/73; none were seen there on a second visit in mid-July 1974.

GREAT HORNED OWL. No owls were seen in the area but a wing feather of an owl of this species was found near M lake on June 1973 and another near R lake in July 1974.

COMMON NIGHTHAWK. Widespread, presumably breeds. One to several birds were seen virtually in all areas visited in 1973 and 1974.

COMMON FLICKER. This was the only woodpecker observed. Single birds seen at M, P, R, and W lakes. Breeding seemed likely on an island in P lake where two were seen on July 2/74 in an area where several possible nesting cavities in trees were available.

YELLOW-BELLIED FLYCATCHER. A good view of one was obtained on the east shore of M lake on June 8/73.

ALDER FLYCATCHER. The call of the flycatcher was heard in a willow-alder habitat on the east shore of M lake on July 8 and in a similar area at R lake on July 27/73.

LEAST FLYCATCHER. One was seen and heard at E lake on June 8/73 and another at P lake on July 4/74.



E. O. Höhn

Northern Phalarope on the small lake near Rock Island Lake,

OLIVE-SIDED FLYCATCHER. This flycatcher was scarcer than might have been expected. Single birds were seen at U, and W lakes in June and July 1974.

REE SWALLOW. A thinly distributed breeding bird. Seen in very small numbers at M, U and P lakes; two tentatively identified at R lake. At P lake one was flushed from a nest hole in a dead birch on an island on July 2/74.

BANK SWALLOW. Only observed near P lake where a bank on the shore of a nearby lesser lake held six occupied nests; two out of three nests examined held eggs on June 21/74.

ARN SWALLOW. Probably only an occasional visitor from surrounding areas; one near M lake fish camp on June 28/73.

GRAY JAY. A well distributed breeding bird. Small groups often including young of the year seen in all areas visited.

COMMON RAVEN. Single birds or couples seen in all areas visited; the

sighting of two adults with a young of the year at P lake on July 1/74 indicates local breeding.

***BOREAL CHICKADEE.** Scarce but apparently breeds. Seen only at M, P, and R lakes. A family group with young of the season was seen at P lake on July 2/74.

AMERICAN ROBIN. Well distributed and breeds but in small numbers; one or two seen in all areas visited and a nest with three eggs found at P lake on July 3/74.

HERMIT THRUSH. Apparently restricted to relatively low-lying portions of the area where it breeds. Nests with eggs were found at U and W lakes in late June and early July 1974; it was also seen at P and M lakes.

SWAINSON'S THRUSH. Only observed at P and W lakes but fairly numerous about the former. Probably restricted to the lower-lying portions of the area.

***GRAY-CHEEKED THRUSH.** During our stay at R lake, June 26-28/73, there were about twenty along half a mile of the

west shore of the lake; several seen with food in the beak suggesting young were nearby.⁴ During July 16-29/74 only one seen in this area; presumably most had already left this apparent breeding area by then. One heard singing at U lake June 22 and 23/74 and one collected there June 25.

RUBY-CROWNED KINGLET. Some observed in all areas visited.

***BOHEMIAN WAXWING.** May breed in the area. A male was collected at U lake on June 21/74; several sightings made later at P lake, the largest a flock of twenty-three on June 29; a small flock at W lake July 11-14 of the same year. Elsewhere only a waxwing call heard in early June 1973 near M lake.

[**NORTHERN SHRIKE.** On June 6/73 two of us had a very brief view of a gray shrike presumed to be of this species.]

RED-EYED VIREO. A singing male seen on an island in E lake on June 8/73.

***TENNESSEE WARBLER.** Local, presumably breeds; common and evidently established in territories in areas where there were young deciduous trees or in willow-alder thickets about P lake in June 1974 and in a willow-alder area on M lake in June 1973.

ORANGE-CROWNED WARBLER. One seen at M lake on June 8/73, and several on an island in E lake on the following day.

YELLOW WARBLER. Evidently less common than in more low-lying country; breeds. One to several, including a pair, were seen at U and P lakes in June 1974. At R lake a male was seen on a shore-line tree with a fully-fledged young bird judged to be of the same species on July 19/74.

MAGNOLIA WARBLER. Our only observation is of several seen on an island in E lake on June 8/73.

YELLOW-RUMPED WARBLER. A common and generally distributed breeding bird. Seen in some numbers in all areas visited in a variety of treed and partly-treed habitats. Family parties with young of the year about R lake in July 1974.

BLACK-THROATED GREEN WARBLER. A singing male observed for some time near the shore of E lake on June 8/73 is our only observation of this species.

***BLACKPOLL WARBLER.** A widely distributed breeding bird; fairly common in all areas visited both in fairly open, formerly burnt areas as well as in habitats with more trees. Several young out of the nest seen with adults at R lake in mid-July 1974.

***PALM WARBLER.** A widely distributed breeding bird. This warbler was fairly common in all areas visited, generally in fairly open burns but also found in mixed wood habitats. At P lake on July 5/74 two males and a female were seen gathering insects evidently for their young but no nest could be found.

NORTHERN WATERTHRUSH. Our sole observation is of one well seen on an island in E lake on June 8/73.

COMMON YELLOWTHROAT. Apparently local but may breed. Single birds seen or heard singing in a willow-alder area on the east shore of M lake on June 6 and 8/73.

***WILSON'S WARBLER.** Apparently breeds generally in willow or willow-alder scrub areas, seen in such habitats as P, M, and R lakes. One seen at M lake with beakful of food on June 30/73, evidently had young nearby.

AMERICAN REDSTART. Observed only on an island in E lake where there were several on June 8/73.

***RUSTY BLACKBIRD.** Fairly common breeds. Some were observed near large and small lakes and along creeks in all areas visited except W lake. At U lake a female seen feeding a young bird out of the nest on June 25/74; by July 7 flocks of up to five were seen at P lake and their apparent absence at W lake which was not visited until July 8 might have been due to their predeparture from that area.

PINE GROSBEAK. Only one observation — a female seen between E and M lakes on June 6/73.

COMMON REDPOLL. Two seen for a short period at U lake on June 25/74.

PINE SISKIN. Three seen at W lake on July 14 and one near R lake on July 17/74.

WHITE-WINGED CROSSBILL. Only one observation but it suggests local breeding. A juvenile heavily streaked below was seen at R lake on July 27/73 and later on the same day a group of four which included two males in full plumage was encountered there.

***SAVANNAH SPARROW.** Fairly common in the limited grassy areas and also on some burns about all the larger lakes visited except W lake. A nest of five eggs found at M lake on June 10/73.

***DARK-EYED JUNCO.** Fairly common in all areas visited, evidently breeds as family parties with young of the year seen in early July.

CHIPPING SPARROW. Fairly common in dry habitats in all areas visited; breeds. Two nests found at P lake on July 4/74; one held four eggs and the other four young; next day one of these sparrows was seen nest building in a spruce in this area.

WHITE-CROWNED SPARROW. Fairly common in all areas visited, particularly in large burns, breeds; nest with four eggs, E lake June 6/73; female with brood patch collected at U lake June 19/74; pair seen feeding four young at P lake early July 1974; adults and fledged young common at P lake mid-July 1974. Two adults collected here, as expected, of the subspecies *gameli*; however, an adult with the head markings of the subspecies *oriantha* was taken in a small mammal trap at R lake on July 17/74; next day a juvenile taken in the same trap also showed head markings of this form. E.O.H. compared the apparent *oriantha* adult with a number of study skins of birds of the two subspecies mentioned.

Adults of the two forms seem to him to differ only in the head pattern; on this basis the adult taken at R lake belongs to the subspecies *oriantha*.

WHITE-THROATED SPARROW. Evidently rare; none seen but one heard singing at P lake on July 3/74.

LINCOLN'S SPARROW. Several seen and heard singing about M and R lakes where they were evidently established. A female with brood patch taken in a trap at M lake on June 8/73.

SWAMP SPARROW. Only one seen, in an alder-willow area near a small lake in the R lake area on July 16/74; may well be more frequent than this single observation suggests.

SONG SPARROW. Perhaps confined to the more low-lying portions of the area where it may well breed for one or two seen at U, P, and W lakes but none about E, M, and R lakes.



Caribou at Rock Island Lake, July 1974.

E. O. Höhn

MAMMALS

Statements on the local status of the larger mammals given to E. O. Höhn by G. Grimm in June 1973 are cited in the list below. More general and also negative information received from Grimm is summarized here: mink, marten

and fisher relatively common; he had never seen a lynx, wolverine (though he said the latter were sometimes trapped in the area), skunk or porcupine. On the other hand the chief forestry ranger at Fort Vermillion reported

lynx as numerous, and that his staff had seen signs of porcupines and wolverines.

*MASKED SHREW. An adult male trapped in an old cabin at P lake July 2/74.

*AMERICAN WATER SHREW. An adult male trapped on the rocky shore of P lake July 1/74.

SNOWSHOE HARE. The skulls of about half a dozen were found on a trail near M lake on June 9/73 and on June 29 of that year a hare seen on the same trail. The species was presumably at a low during the period of our observations.

*LEAST CHIPMUNK. Local, perhaps confined to relatively low-lying areas where the vegetation is more rich and varied for it was only seen at M and W lakes where an immature male was collected on July 11/74.

*AMERICAN RED SQUIRREL. Fairly common in all areas visited. An adult female in post-lactating condition collected at P lake June 26/74 as well as an immature at W lake in July of that year.

AMERICAN BEAVER. Fairly common for some seen in small numbers at U, P, W, and M lakes as well as on several smaller lakes and several lodges seen.

*DEER MOUSE. Possibly restricted to lower-lying portions of the plateau with relatively rich vegetation, for specimens trapped only near the fish camp at M lake and at W lake.

*GAPPER'S RED-BACKED VOLE. Evidently the most common murid in the area for several were caught wherever traps were set, i.e. at E, M, R (in 1973 and 1974) and W, P, and W lakes (in 1974). Adults in breeding condition, including pregnant females, post-breeding adults as well as immatures were taken.

*HEATHER VOLE. An adult male trapped in June 1973 at R lake and another in much the same locality in July 1974.

MUSKRAT. Only observed about the mouth of a creek at the east end of M lake in June 1973 where there were several but G. Grimm says this species and beaver were common in all the lakes of the area.

*MEADOW VOLE. Apparently confined to grassy areas and as these are few and far between, probably very local. We trapped one at M lake and were able to capture a large adult on the grassy shore of a smaller lake northeast of M lake in June 1973.

WOLF. G. Grimm told E.O.H. it was fairly common; this seems to be confirmed by our

findings of tracks in mud on seismic trail near R lake in June 1973 and July 1974; as there are no dogs in the entire area the identity of large canine footprints is beyond doubt. Droppings attributed to this species were also found at W lake in July 1974.

[RED FOX. Evidently scarce; G. Grimm told E.O.H. he had only seen one, in 1970 we saw none nor any indications of their presence.]

AMERICAN BLACK BEAR. Bears are apparently much scarcer on the Caribou Mountain plateau than in the surrounding lower country. G. Grimm had only known of one about M lake in all his years in the area. A yearling was seen several times at lake between June 26 and 30/74; it was feeding on remains left by fishermen. At W lake fresh bear signs were found in July 1974 and about the same time droppings attributed to this species were found at lake.

RIVER OTTER. G. Grimm told E.O.H. he had once seen two otters on M lake. On June 23 two were seen swimming across lake and then ascending a creek which flows into it.

CARIBOU. The very name of the area indicates that it once held a good population of woodland caribou. The many trails evidently made by these animals, which follow the shores of all the lakes visited, as well as certain creeks, suggest that this was the case until comparatively recently. A pilot of Peace Air Service told E.O.H. that during the five years (preceding 1973) he had known the area, caribou had decreased very noticeably. On the other hand G. Grimm in 1973 rated them as fairly common. One of our parties found fresh tracks as well as the antlers of four animals. On June 9/73 fishermen reported seeing a doe with calf on the shore of M lake to the other party which on the 10th saw a doe with calf on the shore of a small lake between M and E lakes from the air. Early in the morning of July 18/74 a doe with calf was seen on the south shore of R lake. The animals followed the lake shore westward crossing the creek which flows out of lake and in the course of about an hour reached our camp on the west shore of lake which they by-passed, after being startled by our presence, on the landward side.

[MULE DEER. According to G. Grimm mule deer are occasionally seen in the Caribou Mountains.]

MOOSE. Rated as scarcer than caribou by G. Grimm. Fishermen reported a male at lake on July 6/74; fishermen on this lake reported seeing a cow and calf on the

Following day; moose sign was fairly common around this lake and moose dung was also found west of R lake in July 1974.

AMERICAN ORNITHOLOGISTS' UNION. 1957. *Check-list of North American Birds*. 5th Edition. Baltimore: Port City Press. 691p.

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AN INTERESTING MERLIN

by DAVID L. SURKAN*

On 8 February, 1975 while walking home from classes at the University of Saskatchewan, I noticed a bird trying to take off from a snowbank in front of the University Hospital. After a short chase, I picked up the bird and identified it as a Merlin. Dr. Stuart Houston and I determined that the tip of its beak was damaged and it was bleeding — in addition, it was wearing a band. It was a Merlin banded as a nestling by Stuart Houston on 25 June, 1974 at a nest described by Lynn Oliphant.²

Merlins have wintered in Saskatoon for at least 20 years, perhaps in response to the large number of small birds which now winter in Saskatchewan cities. The A.O.U. Check-list 1957¹ indicates Wyoming, Colorado and occasionally Nebraska and Iowa as the northern most wintering states for this species. We are not sure whether local Merlins or birds perhaps from further north, winter here. We are not sure which subspecies winters here. The light coloured subspecies, *Falco columbarius richardsonii*, had virtually disappeared as a nesting species from the prairies of Saskatchewan by the 1960's. We strongly suspect, but have no conclusive proof, that it is

pale prairie subspecies that is making a "comeback" in the Saskatoon area.

An adult pair of Merlins was seen early in March, 1975, by Tom Donald re-establishing territory at one of the 1973 nesting sites. We conclude that both adults and their young remain in Saskatchewan the year round. Study of the injured Merlin revealed a very pale plumage of an immature male which is typical of the *richardsonii* subspecies.

The Merlin had a fractured left ulna as shown in x-rays taken by David Pitt-Brooke and Lynn Oliphant, Western College of Veterinary Medicine. The wing was bandaged, and Bob Rafuse undertook to care for the bird until the wing healed. The Merlin will probably be released in June.

I wish to thank Dr. Houston for his assistance in preparing this note.

¹AMERICAN ORNITHOLOGIST'S UNION, 1957. *Check-list of North American birds*. 5th Edition. Port City Press, Baltimore. 691 p.

²OLIPHANT, LYNN W. 1974. *Merlins — the Saskatoon Falcons*. Blue Jay 32: 140-147.

REQUEST FOR MERLIN SIGHTINGS

Any information on Saskatchewan merlin (pigeon hawk) nestings or even sightings during the breeding season would be greatly appreciated to supplement a general survey of these birds in the province.

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Merlin on the mend

Bob Raf

HAWKS

Drawings by C. J. TREFRY



Ferruginous Hawk, *Buteo regalis*.



Immature female Black Merlin, *Falco columbarius suckl*





Peale's Falcon, *Falco peregrinus pealei*.

WHITE-FRONTED GOOSE MIGRATION ROUTE THROUGH NORTHEASTERN SASKATCHEWAN

by HARRY A. STELFOX*

The White-fronted goose is a common autumn and spring migrant through southern Saskatchewan, especially in the Eston-Kindersley-Kerrobert and Quill Lakes-Last Mountain Lake districts. However, the migration routes followed by this species both from and toward their tundra breeding grounds, are still relatively unknown. This note is presented in the hope that it will clarify and document a spring and autumn route through northern Saskatchewan.

During the wildlife investigations of the Churchill River Study some interesting observations of migrant White-fronted geese were made. Approximately 160 birds were observed (G. Brewster and J. Polson) flying south along the Reindeer River on 12 and 13 September 1973. Sixty-five of these birds stopped to rest and feed along the exposed beaches of the river some 3 miles south of the Whitesand Dam ($56^{\circ} 10'$ lat., $103^{\circ} 10'$ long.). The following spring on 23 May, 1974, three flocks totalling about 450 birds were observed (G. Brewster and D. Hjertaas) flying north over Wintego Lake on the Churchill River ($53^{\circ} 35'$ lat., $102^{\circ} 50'$ long.).

Relatively few observations have

been made of White-fronted geese at these northern latitudes. Nero⁷ presents no information on these birds in northeastern Saskatchewan, nor does Manning⁴ mention them in his ornithological studies between Reindeer and Baker Lakes. North of Saskatchewan, Mowat and Lawrie⁶ present several records of migrant and breeding White-fronted geese in the Angikuni and Beverly lakes area of the Northwest Territories, however they state "... its apparent rarity as a migrant south through Keewatin" is notable. In fact they went on to suggest that these birds appeared to reach this breeding area from the west via an interior, Central flyway, as opposed to the Hudson Bay coastal route used by Snow geese. Harper² mentions only one bird observed in southern Keewatin. This was collected near the mouth of the Windy River in June, 1947.

At present, banding returns suggest that there are two distinct segments to the Mid-Continent Population of White-fronted geese; an eastern oriented segment and a western one.⁵ This distributional information suggests that birds observed on the Churchill River Study were likely from the eastern segment which breeds in the Keewatin District, Victoria and King William Islands, and winters in Louisiana and eastern Texas. Evidence presented by Kuyt³ indicates since the 1950's this species has grown

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in numbers and expanded its breeding range, especially along the Thelon River, N.W.T.

Several observations have been made of migrant White-fronted geese in eastern Manitoba along the coast of the Hudson Bay.^{2 8 9} Some of these birds were observed with migrant Snow geese but none of the sightings were of large flocks. No previous documentation is available to show, that these eastern segment birds, which congregate in southern Manitoba and southeastern Saskatchewan, migrate inland through northeastern Saskatchewan and northwestern Manitoba to any extent. Our observations suggest that at least a portion of the eastern segment White-fronted geese use an inland route on both spring and autumn migration.

I would like to thank Alex Dzubin (Canadian Wildlife Service, Saskatoon) for providing valuable advice in preparing this note.

¹HARPER, F. 1953. *Birds of the Nueltin Lake Expedition Keewatin*. 1947. Amer. Midl. Nat. 49:11-116.

²JEHL, J. R. and B. A. SMITH 1970. *Birds of the Churchill Region, Manitoba*. Spec. Publ. No. 1. Man. Mus. Man and Nature. Winnipeg. 87 p.

³KUYT, E. 1962. *White-fronted geese breeding in the Thelon Valley, N.W.T.* Can. Field-Nat. 76:224.

⁴MANNING, T. H. 1948. *Notes on the counts of birds and mammals west of Hudson Bay between Reindeer and Baker Lakes*. Can. Field-Nat. 69:28.

⁵MILLER, H. W., A. DZUBIN and T. SWEEP 1968. *Distribution and mortality of Saskatchewan banded white-fronted geese*. Trans. N. Am. Wild. Nat. Res. Conf., 33:101-119.

⁶MOWAT, F. M. and A. H. LAWRIE. 1955. *Bird observations from southern Keewatin and the interior of northern Manitoba*. Can. Field-Nat. 69:93-116.

⁷NERO, R. W. 1967. *The birds of northeastern Saskatchewan*. Spec. Publ. No. 6. Sask. Hist. Soc., Regina. 96 p.

⁸PREBLE, E. A. 1902. *A biological investigation of the Hudson Bay region*. North Amer. Fauna, No. 22. 140 p.

⁹TAVERNER, P. A., and G. M. SUTTON 1919. *The birds of Churchill, Manitoba*. Annals of the Carnegie Mus. 23:1-83.



White-fronted geese. Last Mountain Lake.

Ken Lum

INGESTED LEAD SHOT IN SASKATCHEWAN DUCKS

by DAVID A. HARVEY*

The lead poisoning problem in waterfowl has increased greatly since the early part of this century. In the United States, it has been estimated that about 4% of the birds in the Mississippi Flyway fall victim to this sickness each year.¹ No previous study has apparently been carried out in Saskatchewan on the lead poisoning problem. A substitute for lead is being sought.² While lead shot is being phased out in the United States, it may be many years before it is banned in Canada. Even after a ban, the tons of lead on the bottoms of potholes, lakes and rivers will take many years to dissolve or sink. Meanwhile, waterfowl will continue to swallow spent shot, mistaking it for grit or seeds.³ Lost shot takes about 40 days (depending on the size) to completely dissolve once in the gizzard of a bird.³ The number of shot a bird can ingest before serious effects are noticeable varies with the health of the bird and its diet. Occasionally, one pellet may cause death.¹ Waterfowl affected by lead poisoning show signs of emaciation and weakness. The poisoning also reduces the bird's ability to reproduce even when it does not cause death. Ducks containing ingested lead are usually safe for human consumption due to the small amount of lead involved.

To obtain some information regarding the potential seriousness of the

lead poisoning problem in southern Saskatchewan, a study was undertaken in seven areas. The samples used for analysis were 123 gizzards of ducks, shot between October 15 and December 1, 1973. The gizzards were kept frozen until January 30, 1974 when they were x-rayed at the Kelsey Institute of Applied Arts and Sciences, Saskatoon with the assistance of Mrs. M. Asher. Lead pellets showed in the x-rays as whitish circles up to 3 mm in diameter (dark spots in Fig. 1). The number of pellets observed was recorded and gizzards with pellets were kept frozen.

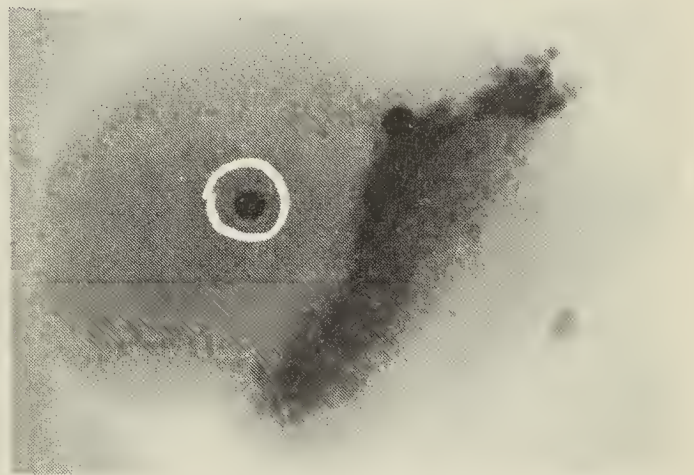


Figure 1 — X-ray of two pellets in a duck gizzard. Circled pellet was ingested, other was shot into the bird in killing it.

Because the ducks were collected by shotgun, some pellets may have entered the gizzards when the duck was shot. To separate these, the gizzards were washed and examined carefully for punctures made by pellets. Such holes were easily located. Pellets which had been shot in could then be

*Wadena, Saskatchewan.

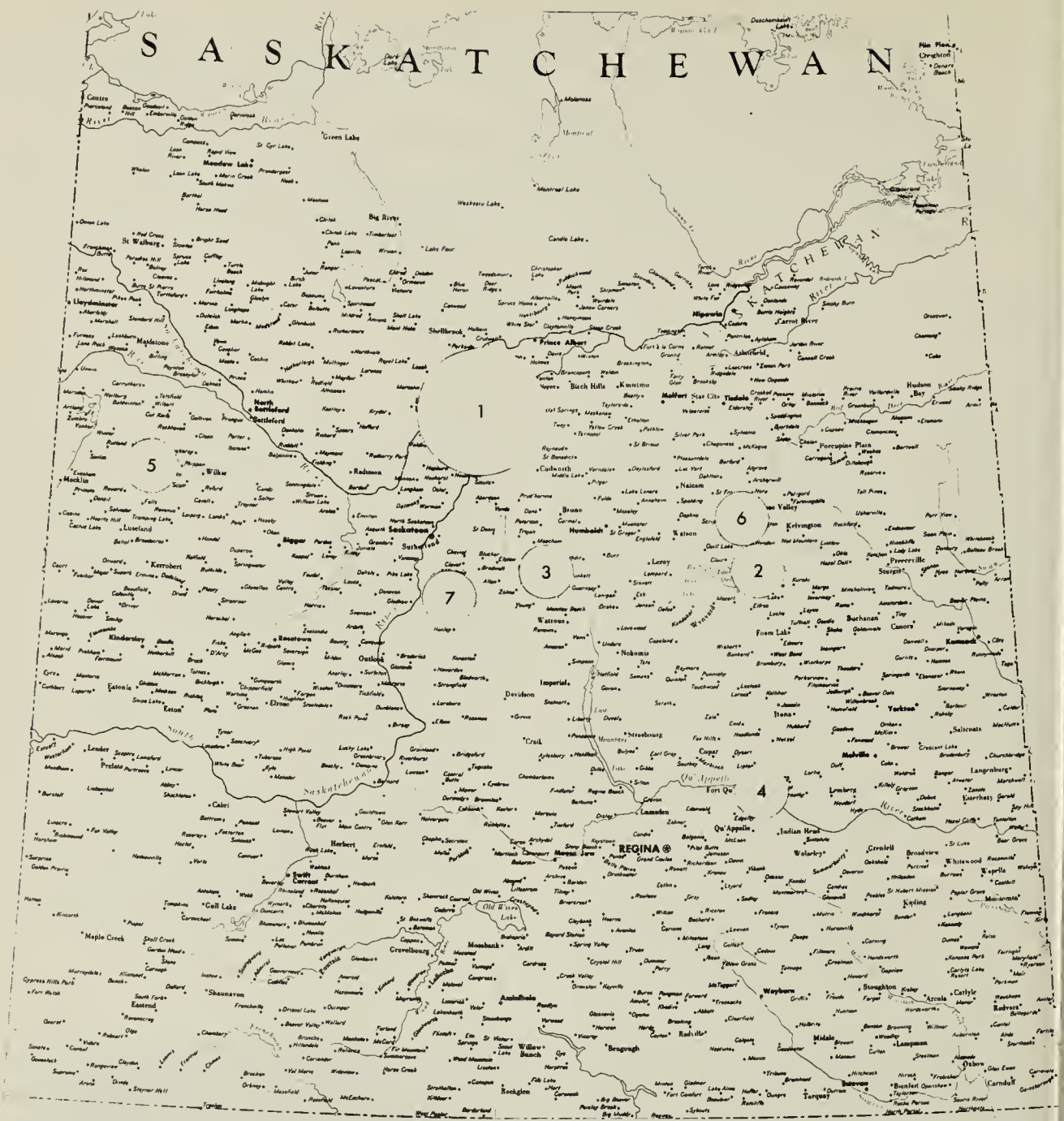


Fig. 2. Locations of ducks collected for ingested lead shot study: 1. Duck Lake (24-mile radius); 2. Wadena (10-mile radius); 3. Viscount; 4. Fort Qu'Appelle; 5. Unity; 6. Fosston; and 7. Dundurn.

found by dissecting the gizzard along the line of entry. Ingested pellets were often more difficult to locate because they were mixed with grit and partially digested vegetation and because ingested pellets were sometimes partially dissolved.

The seven collection areas are shown in Figure 2. Three gizzards were unidentified as to origin. Each area had a radius of 10 miles except for the Duck Lake area where the radius was 24 miles. The larger area

was an amalgamation of two small collection areas, each with small sample sizes. The areas established in the study are: (1) Duck Lake, (2) Wadena, (3) Viscount, (4) Fort Qu'Appelle, (5) Unity, (6) Fosston and (7) Dundurn. The 15 Duck Lake gizzards were collected from Carleton Place, Hague and Tway. The 9 samples collected from the Fosston area originated from Ponass Lake (5 miles west of Fosston) and Hendon. The 49 Dundurn gizzards came from Indi Lake.

Table 1. Comparison of observed and ingested lead pellets in Saskatchewan ducks. (Observed/ingested in one gizzard.)

Area	Mallard	Pintail	Wigeon	Total	
6. Fosston	1/0, 2/1, 1/1	1/1	1/1	—	6/4
6. Hendon	1/0	—	—	—	1/0
6. Ponass Lake	1/0, 2/2, 1/1, 2/1	—	—	—	6/4
7. Indi Lake	1/0, 1/1, 1/1	—	—	1/1	4/3

Area	Mallard	Pintail	Wigeon	Canvasback	Total
TOTAL	14/8	1/1	1/1	1/1	17/11
No. gizzards	11	1	1	1	14

The total number of gizzards was 123. Table 1 shows ingested lead pellets in the 10 ducks. Eleven pellets were observed in the 10 gizzards. Of these, 9 had been ingested in 9 gizzards. Only one gizzard (10%) was found with two ingested pellets.

Ingested shot was found in gizzards from only two of the eight study areas. Of 39 gizzards from the Fosston area, seven contained ingested pellets — 18% of that sample. Of 49 gizzards from Indi Lake, 3 (6%) contained ingested pellets (Table 1). Eight percent of all gizzards had ingested shot.

The 106 Mallard gizzards made up 87% of the sample. There were four gizzards from Lesser Scaup, three from American Wigeon, two from Shovelers and one each from Pintail, Redhead, Canvasback, Gadwall and Blue-winged Teal. Of the ducks containing ingested shot, 70% were Mallards.

The information shows that the frequency of birds with ingested shot is higher in the more easterly study area. This may be due to heavier hunting pressure in the Fosston area. Another factor may be a difference in bottom types of the lakes. A soft bottom will allow spent shot to sink out of the reach of feeding ducks whereas pellets in wetlands with firm bottoms may take longer to sink.

Of 106 Mallards collected, 6.6% contained ingested lead. This is more significant than with the other species because of the large sample. One Wigeon out of three contained ingested shot and the only Canvasback and Pintail collected had ingested shot.

It is interesting to note that 8.1% of all ducks contained ingested lead. A similar survey done in the United States on a much larger scale showed that 6.7% contained ingested shot.¹ That study included 20 species of waterfowl of which Mallards were most susceptible to lead poisoning because of their food habits.¹

One pellet was found in 90% of the infected gizzards. This is enough number 6 shot to kill up to 12% of adult male Mallards but less of other age and sex groups. Two number 6 shot caused 44% of mortality among adult male Mallards.¹

The above results indicate that less than 1% of the duck population in Saskatchewan may die from ingested pellets. So, although lead poisoning is present in Saskatchewan ducks, it appears not to be a major cause of mortality. A similar study should be carried out in more heavily hunted areas of the province with a much larger sample size. These study areas should include Kindersley, Last

Mountain Lake and the Quill Lakes. With hunting pressure constantly increasing and if lead shot continues to be used, the mortality of Saskatchewan ducks due to lead poisoning can only increase. Monitoring this mortality factor is inexpensive and should be initiated on a large scale. Further studies may aid in preventing this cause of waterfowl mortality from becoming more serious.

¹BELLROSE, F. C., Jr. 1964. *Spent shot and lead poisoning*. Waterfowl Tomorrow. United States Gov't. Printing Office, Washington, 479-485.

²FLANEGAN, GENE. 1970. *Lead poisoning problem solved?* Ducks Unlimited Quarterly 33(1), Chicago, 16 p.

³KIMBALL, W. H., and Z. A. MUNIR. 1971. *The corrosion of lead shot in a simulated waterfowl gizzard*, Jour. Wildl. Mgmt. 35: 360-365.

⁴TENNYSON, JON. 1971. *The quest for a solution*. Ducks Unlimited Quarterly 34(2), Chicago, p.

⁵TRAINER, D. O., and R. A. HUNT. 1965. *Lead poisoning of waterfowl in Wisconsin*, Jour. Wildl. Mgmt. 29: 95-103.



THE COMMON DANDELION

by MARIE BARTON*

"Oh, dandelion, yellow as gold,
What do you do all day?"

So read my prescribed grade-three reader in my early years. My pre-school granddaughter with the imagination of a poet shouts, "Oh, look at those dandelions sitting on the clothesline!" I look and see a row of eye-catching goldfinches, eaters of dandelion seeds. They eat the flowers, too. A color food?

Children still make chains from the hollow, milky stalks of these flowers that bloom from May to September. They tell fortunes by blowing the cluster of white-plumed, beaked seeds from their platform until all have

taken to the air. When the disks of the composite gleam with its packed golden ray florets, the wild bee gathers the pollen for bee bread and the nectar for honey.

"If only they bloomed at Christmas," sighs my retired, Swedish neighbor in the suburbs. He loves these 'starts' in his lawn less than do the children, the goldfinches and the bees. But he has lived enough years to remember back to the homestead days. Then he helped his grandfather carry water from the well to a carefully fenced, cultivated patch of the precious vegetables that he calls in his mother tongue by the name of *dents de lion*, meaning lion's tooth —

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Winnipeg, Manitoba
R2J 2A3

reference to the shiny leaves so sharply incised and lobed, leaves that form a rosette around the very short stem.) The mesh enclosure of the pioneer garden of dandelion herbs was sunk into the ground in order to keep out gophers.

"The pioneers raised dandelions?"

"Yes," he answers. "The flowers made good wine. I make some even yet. The leaves we cooked as we cook kale. I liked them in milk sauce or with thick cream, sometimes butter."

"And the roots?" I ask, for the 1973 Funk and Wagnall's *New Encyclopedia* says that they "contain a substance used as a laxative."

"Oh," he replies, "They made a coffee substitute. In those days we had little money for the real bean from the store."

I have a friend, a back-to-nature buff, wife of a doctor, who digs the 2- to 12-inch long, fleshy, tap roots. She trims and cuts the washed pieces, then dries and bakes them in a slow oven on a shallow pan. In lieu of a grinder, she crushes her processed product with a rolling pin. "No caffeine," she says as she pours me a cupful of the brewed beverage. "It's good, I take it black."

In the spring this woman gathers tender young toothed leaves for salads and potherbs. Her *Northern Cookbook* from the Queen's Printer contains recipes. Some cookbooks recommend adding sliced root to the greens. The herb is rich in vitamin C. Though a conservationist, my friend harbors no scruples of conscience about gathering this wild source of food. "Like the starling, it is not on the list of endangered species." She laughs. "Since ancient times the plant has been gathered or cultivated for consumption."

And like the starling and the English sparrow, the Common Dandelion, known by its Latin name as *Taraxacum*

officinale, is an import from Europe. Dan McGowan of Banff is credited by Annora Brown in her book, *Old Man's Garden*, with the knowledge that it was the Hudson Bay Traders at Fort Churchill that used it "to balance a diet consisting too largely of meat."

Olive Perry in *Edible Wild Plants* gives the information that dandelion greens are obtainable in New York supermarkets for the gourmet taste. New Jersey market gardeners raise them in 2- to 4-acre lots. "Several horticultural varieties have been developed that form large leafy plants."

Britannica includes dandelion greens as food for silkworms when silkworm farmers find that mulberry leaves are not to be had. A Russian species of dandelion is cultivated for its latex for the manufacture of rubber. Euell Gibbons in *Stalking the Wild Asparagus* has a chapter on the worth of the dandelion and how to use it.

Apparently as a survival measure this plant could be as useful to man as the reindeer to the Laplander — greens, organic vitamins, honey, wine, medicine, 'coffee', bird food, silkworm forage, and source of rubber, not to mention its esthetic beauty and as a plaything for children. Whether one regards the lion's tooth that grows in temperate, Arctic and tropical regions, on roadsides, fields or tundra as friend or foe — it's all in your point of view.

Editor's Note: While the Common Dandelion is by far the best known of the dandelions, there are several other species, most of which occur in and near the mountains and were not introduced from abroad.



RANGE EXTENSIONS OF TWO RARE ALBERTA SHRUBS

by J. KUIJT* AND J. A. TROFYMOW*

This note reports interesting range extensions for two rare Alberta shrubs, the Rocky Mountain Juniper (*Juniperus scopulorum* Sarg.) and the Mock Orange (*Philadelphus Lewisii* Pursh).

A single isolated tree of the Rocky Mountain Juniper was discovered by one of us (J.A.T.) in the Oldman River valley directly north of Lethbridge. The tree is 12'4" tall and has the typical upright form encountered throughout its normal geographic range (Fig. 1). Several of the lower branches on the northeast (leeward) side have become partially buried and have grown into erect, secondary stems. The main trunk is about 14" in circumference at the base. A core extracted from the lowest portion showed approximately 45 rings.

The tree is located just above the floor of the main valley, in the lower portion of a coulee which runs to the north. Although the tree is, therefore, in a somewhat protected site, the photograph shows that it is not in a ravine, but is surrounded by common low coulee vegetation, including the only other juniper which occurs locally, the Creeping Juniper (*Juniperus horizontalis* Moench). There are neither trails nor roads in the im-

mediate vicinity, nor evidence of any past habitation. A collection has been deposited in the University of Lethbridge Herbarium (Kuijt and Trofymow No. 4745).

A search at the relevant herbaria, including the National Museum at Ottawa, shows that *Juniperus scopulorum* so far is known only from three separate areas in Alberta, all within the mountains, and usually on dry south-facing slopes. Moss suggested that some semi-erect individuals in the Banff and Crowsnest Pass area had been produced by browsing.³ Dr. Val Geist (University of Calgary; pers. comm.) confirms that junipers are an important browse plant for mule deer and, in certain regions, for mountain sheep. However, the individuals Moss referred to are more likely to be intermediates between *J. scopulorum* and *J. horizontalis*, as are certain Waterton Lakes specimens present in the University of Lethbridge Herbarium. Typical erect Rocky Mountain Juniper is also known from Waterton Lakes. In the Crowsnest Pass, typical shrubs may be seen on dry, southern exposures as far east as the western edge of the Frank Slide. Dr. Keith Shaw (Cardston; pers. comm.) also reports a single, isolated small tree at Glenwood near Cardston (Sec. 34 T4 R27 W4). These two localities are some 70 and 40 miles distant, respectively, from the Lethbridge tree. The tree would therefore, seem to represent remarkably clear-cut example of natural long-distance dispersal.

*Department of Biological Sciences,
University of Lethbridge.



Fig. 1. Rocky Mountain Juniper in the Oldman River Valley north of Lethbridge.

J. A. Trofymow.

Juniper berries are said to be eaten readily by many animals, the seeds not being digested.¹

The Mock Orange is a common and decorative shrub in the valleys east of the continental divide, but in Alberta it has so far been known only in the Waterton Lakes area, where it grows very sparsely on a few rock outcroppings on the southern slope of Mt. Crandell near the townsite. It also grows luxuriantly in a small, east-facing ravine just north of the former locality. In the summer of 1974, a small colony of this shrub was discovered on the lower south-facing slopes of an unnamed ridge of red shale on the Alberta side of Mt.

Darrah, west of Pincher Creek. A specimen from this locality has been deposited at the University of Lethbridge Herbarium (Kuijt No. 4743). The similarity of the site to that of the first-mentioned Waterton site was striking. It seems entirely possible that other, comparable southern slopes between Mt. Darrah and Waterton Lakes will yield further specimens of this attractive shrub.

¹HITCHCOCK, C. L., A. CRONQUIST, and M. OWNBEY. 1969. *Vascular plants of the Pacific Northwest, Vol. 1*. Univ. Washington Press, Seattle.

²KUIJT, JOB. 1973. *New plant records in Waterton Lakes National Park, Alberta*. Can. Field-Nat. 87:67-69

³MOSS, E. H. 1959. *Flora of Alberta*. Univ. Toronto Press.

TODAY'S WEEDS — TOMORROW'S VEGETABLES

by AL GRASS*

The other day I read an article in a garden magazine regarding "weeds" and it has prompted me to offer the following comments.

I would like to suggest that one man's weed is another man's wildflower. A weed, it seems, is a plant which competes with more "suitable" plant varieties. Should not a rose bush in a carrot patch be considered a weed? After all, it is stealing nutrients from the tasty carrot.

Some of our most beautiful wildflowers are weeds:

*"Fringing the stream at
every turn
Swing low the waving
fronds of fern;
From stoney cleft and
mossy sod
Pale asters spring and
golden rod."*

Every garden should have a weed patch. This has a dual purpose — to encourage small birds and insects to visit with you and so that you will have some weeds to study and admire. What better way to spend one's time than to cultivate dandelions for sparrows and finches?

Have you ever thought that today's weeds may be tomorrow's vegetables? We can imagine such tasty treats as creamed *Stellaria* on toast wedges and sweet pickled pigweed. Even today we can enjoy such treats as lamb's quarters and dandelion greens.

Nothing is worse than a garden without weeds. Give me a weed patch anytime. There is a thousand-fold more to admire in weeds than in their sickly pampered garden kin.

*From *The Victoria Naturalist*,
31(9) May, 1975.

FIRE IN THE SKY*

BY GREG BEAUMONT

*Pretty soon it darkened up, and begun to thunder and lighten; so the birds was right about it. Directly it begun to rain, and it rained like all fury, too, and I never see the wind blow so. It was one of these regular summer storms. It would get so dark that it looked all blue-black outside, and lovely; and the rain would thrash along by so thick that the trees off a little ways looked dim and spiderwebby; and here would come a blast of wind that would bend the trees down and turn up the pale underside of the leaves; and then a perfect ripper of a gust would follow along and set the branches to tossing their arms as if they was just wild; and next, when it was just about the bluest and blackest -fst! it was bright as glory and you'd have a little glimpse of treetops a-plunging about away off yonder in the storm, hundreds of yards further than you could see before; dark as sin again in a second, and now you'd hear the thunder let go with an awful crash, and then go rumbling, grumbling, tumbling, down the sky towards the under side of the world, like rolling empty barrels down-stairs — where it's long stairs and they bounce a good deal, you know. **The Adventures of Huckleberry Finn**, Mark Twain.*

OF ALL THE natural spectacles which awed and threatened early man, perhaps none was as frequent and bewildering as the sudden violence of a thunderstorm. Thus in the shadow of towering cumulus did deities come to be born, and in thunderbolts were the judgments of divine wrath delivered.

Even scientific man, who knows better, may find a thin trace of that old fear reflected in some dark corner of his mind when lightning splits the night and clouds begin to speak. Yet, he understands such phenomena as the inevitable conclusion of a predictable chain of events; he knows that one of the ironies of a stable, natural order is that it demands a frequent, often violent, reckoning of its forces.

Developing thunderheads vary greatly in appearance. In the semi-arid climate of Nebraska, the billowing up of a huge cumulus cloud can often be observed against a clear blue sky. A large system may boil upwards to 50,000 feet where the upper reaches of the cloud encounter strong winds that

carry it away, producing a flattened "anvil" top.

Referred to as "weather factories" because of the wide range and often severe conditions associated with their development, thunderstorms are produced by localized, unstable air masses. Thunderheads begin as cumulus clouds; these clouds signifying a convective overturning in the atmosphere, that is, an air cell which is rising because it is warmer and therefore more buoyant than the air around it. The summer sun beating down on an open field will produce a column of superheated air. If this cell of heated air is large, and if in rising it passes through a deep layer of moist air, conditions will be favorable for this convective overturning to develop into a storm cell.

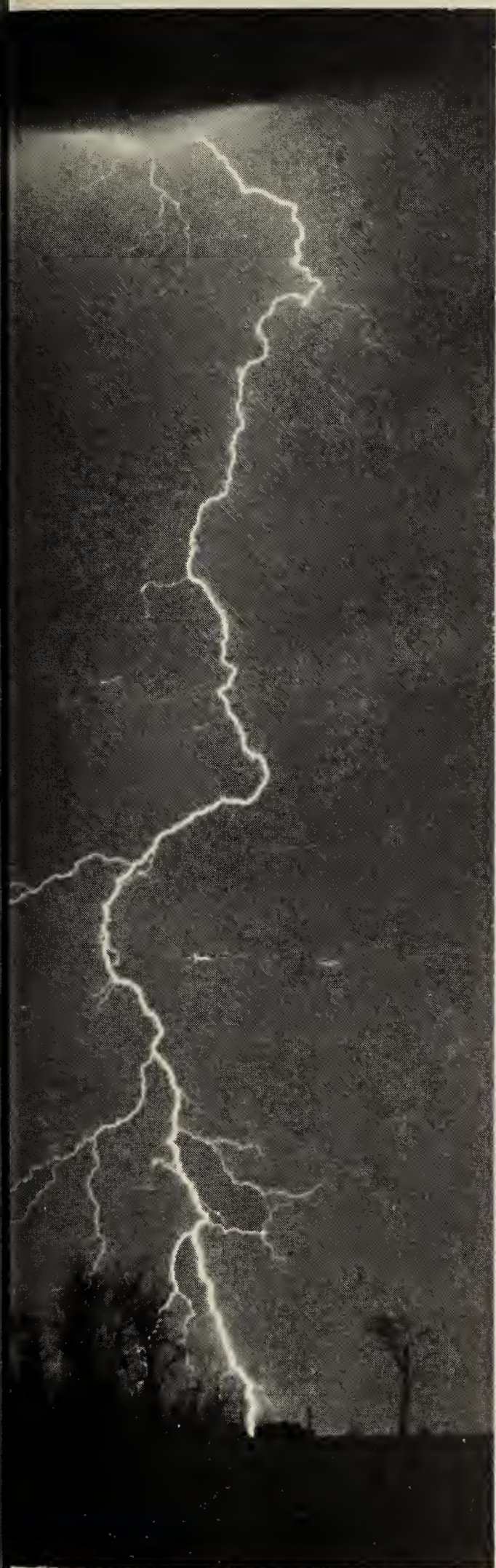
The average thunderstorm consists of several of these convective cells. Each undergoes a definite life cycle. In the initial stage, strong updrafts move upwards through the cloud. After several minutes of this updraft, in which the rising air is rapidly cooled, precipitation is triggered, creating a downward movement of air.

When both upward and downward air movements are active, the cell has

*Reprinted from
Nebraskaland
July 1974



Fire in the Sky



David Pristupa

passed into its mature stage. At this point the cell is highly unstable and produces violent winds, rain and electrical discharges.

The downdraft, at first small and located to one side of the updraft, gradually enlarges and moves across the cell, shutting off the updraft. Now the storm cell rapidly weakens and enters its final stage of dissipation. The rain may end abruptly or continue for hours as light showers, depending on conditions of the air masses in which the cell formed.

Each of the three to five cells within the average thunderstorm has a life of about 45 minutes. Since each cell develops independently of the others, there is seldom more than one cell at violent maturity at any one time. When you observe the lessening of lightning activity in one area and an increase elsewhere, you are watching the dissipation of one cell and the maturation of another.

The most spectacular product of the thunderstorm is, of course, lightning. While the causes of lightning are complex, the actual bolt is nothing more than a natural process of equalization between unbalanced electrical charges. The turbulence of a thunderstorm displaces electrons from air molecules, resulting in a deficit or surplus, thus creating concentrations of negative or positive charge. Lightning is the adjustive mechanism whereby the natural electrical balance is restored.

Of the many identifiable forms of lightning, the ground discharge is the most fascinating, and most dangerous. The expression, "inviting disaster", is literally true for an exposed person during thunderstorm conditions. Since negative and positive charges are mutually attracted, an electrical leader will be "invited" upward from the ground when an oppositely charged leader leaves the cloud.



Stormclouds

David Pristupa

Naturally, this leader will travel upward through the path of least resistance. In open terrain, if there is not a windmill, high hill, tree or any other convenient conductor, a cow or person will suffice.

In open country, the union of these two leaders occurs several feet from the ground. Most ground discharges carry negative electricity from the cloud to earth. Once joined, these relatively weak leaders convey a massive surge of current. Termed a return stroke, this 30,000-amp bolt

causes intense heat (over 53,000°F.) and luminosity.

The flash rate of a cell begins at one or two discharges per minute, increases rapidly to an average of five per minute, and is quickly exhausted. Should the storm develop at high altitude, most electrical exchanges will be from cloud to cloud.

Thunder is produced after the electrical channel displaces air, creating a compression wave. The characteristic rumbling of a distant storm is caused by sound waves



Rails, ties and hail

David Pristupa

reaching an observer from different origin points. Since a bolt may be miles in length, and since sound waves are emitted at every stage of the bolt's development, they do not reach the observer at any one time or from a single source. The commonly observed "heat" lightning of a summer evening is simply a thunderstorm in progress at a distance too great for thunder to be heard.

While thunderstorms occur everywhere on earth, they develop most readily along the equator, becoming infrequent beyond the 50° North and South latitudes. In polar regions, conditions are seldom present for thunderstorms propagation.

It has been estimated that at any one moment there are about 1,800 thunderstorms in progress around the earth. Since a mature cell will generate approximately five flashes a minute, we can estimate 150 flashes occurring every second.

As a violent and dramatic natural force, a thunderstorm, like a volcano or an earthquake, can be seen as necessary chaos to maintain established order — a ritual of instability to insure the long-term equilibrium of this changing, yet changeless, planet.



PRINCE ALBERT NATIONAL PARK INTERPRETIVE PROGRAM

by RON DUTCHER*

National Parks have always been the subject of controversy. This situation exists because of the various values placed on parks by different people or groups. Even the dedication clause of Canada's National Parks Act appears to reflect this variety of values — it states that the parks will be used by the people of Canada, but used in such a way as to leave them unimpaired for future generations. Debate over what constitutes appropriate use and unimpaired have added considerable warmth to both public and private discussions.

In the mid-1960's, Parks Canada began a major effort to help people understand and appreciate their parks. Park interpretive programs were not a new idea; they had been underway in some provinces and in the United States for quite some time. Indeed, some effort at interpretation had been made in several National Parks — Grey Owl's work, based in Prince Albert National Park in the 1930's, was essentially that of a park interpreter. But the effort of the 1960's was to establish active interpretive programs as an important activity in all Canada's National Parks.

This initiative was welcomed by natural history groups throughout the country. I suppose there were a variety

of reasons for this enthusiasm, and one of these was recognition of the opportunity to interest a large number of Canadians in the natural world. The interpretive program in the Prince Albert National Park, which developed from this initiative, began with the appointment of a permanent Chief Park Naturalist in 1967. Now that the program has been operational for 8 years, it seems likely that its supporters in the Saskatchewan Natural History Society would welcome a status report. As well, there are probably a number of members who are unaware of what is involved in an interpretive program, and what it can mean to them — this is a good opportunity to supply that information.

When the majority of park visitors come into a park they lack the information they require on how to make the best use of their time, how to more thoroughly enjoy the park. The basic purpose of an interpretive program is to remedy this problem: interpretation endeavours to bridge the gap between the resources which led to the creation of a park and the visitor.

How is this done? There are a number of traditional techniques, and a constantly evolving series of new ones. In Prince Albert National Park all the following activities are planned as part of the 1975 program:

1. Conducted Walks — these are one of the traditional interpretive activities which have been highly successful over the years. Visitors meet

*Prince Albert National Park,
Waskesiu, Saskatchewan.

and travel to a nature trail where a naturalist explains the environment through which the trail passes.

2. Evening Programs started out as talks given around a campfire by a naturalist. Development of sophisticated and effective audio-visual techniques and equipment have considerably modified these activities; they now range from programmer-operated multi-image presentations to the more traditional naturalist and a slide projector. Evening programs also include films or demonstrations related to some element of the park story. Still effective, and still part of our 1975 interpretive program, are campfire specials complete with sunset (clear nights only!), tea prepared over the campfire, and stories and legends about the park.

3. Car Caravans are much like conducted walks except the use of vehicles permits dealing with a larger area. This ability to move over a larger park-scope is particularly useful when looking at geomorphology — one needs to travel over several miles to appreciate the landforms and their inter-relationships. One other element of the Prince Albert National Park story is the transition from grassland to forest, and north-south car caravans are used to explain this transition.

4. Children's Programs were added to the activity schedule in 1974 and proved to be a popular event. The events are quite flexible, but usually involve something like the preparation of spore prints or the identification of plants by drawing leaf outlines.

5. Special Events are an attempt to provide as varied a program as possible. While a special of some sort is guaranteed every day, the places and times are varied to allow us to take advantage of conditions ideal for the events. Specials that have occurred frequently include seine hikes to net fish, wolf howls, a buffalo caravan, and

a sunrise special. These events are listed in advance in our weekly newsletter.

6. Wolf Country. For the 1975 season, the specials program will also involve some entirely flexible events such as a trip to Grey Owl's cabin, a roving naturalist who will seek out groups and stop to talk with them, a look at what's underwater on a warm day at the beach, and an all-day hike. We are also asking the public to suggest additional activities which we will attempt to arrange.

In addition to these naturalist-conducted activities, a number of self-interpreting devices have been developed over the past 8 years:

1. Interpretive Centre — for the 1975 season the exhibits in the Centre have been completely re-done. The function of this building is to provide visitors with an understanding of the overall park story. It differs from a museum in that visitors are encouraged to go out and see the park. While much of the story is carried by the exhibits, there is also a new theatre which complements the exhibits with sound and slides, and a naturalist is on duty to answer questions.

2. On-Site Exhibits — Two major on-site exhibits have been constructed in the park, and additional ones are in various stages of planning. The Height-of-Land exhibit is located a few miles south of Waskesiu near Highway 263. The exhibit consists of a 40 foot tower atop one of the higher hills in the park. A new sign will be installed this summer to interpret the height-of-land between the Saskatchewan and Churchill Rivers, logging history in the park, and to provide general orientation to the superb view.

The second major exhibit explains the phenomena of ice-push, which produces characteristic ridges around most park lakes. The exhibit is located on the Narrows road on the south



The boardwalk to a beaver lodge at Tripps Beach.

shore of Waskesiu Lake and is constructed upon an ice-push ridge.

3. Two self-guiding trails have been developed. The older of these — Mud Creek Nature Trail — was prepared as a self-guiding trail in 1970. Last year, the new Boundary Bog Nature Trail was opened in August. Pamphlets have been prepared for both these trails.

4. Interpretive Signs are located at a number sites throughout the park. They provide a two-or three-sentence capsule of the site story.

Now that some of the basic elements of the public part of the Prince Albert National Park Interpretive Program have been outlined, let's take a look at some of the faces that conduct the activities. Two naturalists, myself and Mr. L. Bilodeau work in the park year round. The main portion of the public program is conducted by Seasonal Naturalists who work for 4 months, May to September. These people are

usually university students majoring in some area of natural or human history. When considering applications for Seasonal Naturalist positions, we look for people with either a good general background, or some specific knowledge of one area of natural history; and the ability to communicate this knowledge in an imaginative way. *Both* elements are necessary.

One of the things that park interpretive programs can mean to members of the Saskatchewan Natural History Society is the opportunity to share their knowledge and interests with others. Some members may be interested in doing so directly by applying for naturalist positions. Another way that developed a few years ago may interest others: the annual meeting of the society was held in the park in the spring of 1970 — following the meeting, a number of contacts were maintained. One of these



Buffalo caravan at Elk Meadows' stop.

resulted in a weekly presentation of a slide/poetry program prepared by two society members.

A third way to share is simply to introduce yourself to a Naturalist. The field of natural and human history is much too broad for an individual to have exhaustive knowledge of all areas. When a person stops by with a detailed knowledge of some subject, he can often provide great assistance to the Naturalist trying to interpret that subject. Moreover, the very occurrence of discussion is stimulating to the Naturalist, and he and the public will benefit from his increased enthusiasm.

Interpretation involves more than the simple communication of information — it attempts to convey a

feeling for concepts like wilderness, parks, and the things that one finds in such places; it attempts to create and nurture attitudes to support this feeling; it attempts to attain these objectives initially for the park visitor but also to extend them beyond the park to the surrounding area, to the nation, and to other nations. This article outlines what we have done in interpretation in Prince Albert National Park, and by implication, what has been done in other National Parks across the country. It is also an invitation to the Saskatchewan Natural History Society — an invitation to participate in the various activities offered and an invitation to share your knowledge and interests.



Hikers on Mud Creek Trail.



Conducted hike.

AMBUSH

by J. BERNARD GOLLOP*



Closeup of back and side of ambush bugs.

Gary Gentle.

The butterfly's wings were quivering and it did not fly as I approached. When I was only a few inches away, it fell off the yellow gumweed flower but did not fall to the ground. Closer investigation showed that it was being held by an insect much smaller than itself. The butterfly — a skipper — had brought both wings down so that the

tips nearly touched *beneath* the body. As it hung there, the wings suddenly opened almost horizontally; it was apparently dead. All this took about 1 minute. I collected skipper, ambush bug (*P. hymata*) and flower from near the site of the Haultain elevator, 8 miles south of Saskatoon.^{2 5}

Two days later, September 4, 1974, I was again collecting butterflies, this time on Kernan's Prairie, 2 miles northeast of Saskatoon. In less than 15 minutes, I found three more butter-

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Saskatoon, Saskatchewan

flies, all with their wings turned down and all being held on purple asters by the same kind of bug. The first, a male alfalfa butterfly, was apparently dead. The second, a female cabbage butterfly, moved occasionally; it was being held underneath the body by one of a pair of copulating ambush bugs. The third was also female cabbage butterfly, caught by the side of the head and apparently dead.⁴

The four butterflies and their assassins are shown in Figure 1; closeups of ambush bugs are shown in Figure 2.

The 25 North American species of ambush bugs obtain their food from insects as large as bumblebees and butterflies by lying in wait for them.⁵ They are successful partly because their

small size (1/4-3/8" long) and their camouflage, resulting from the irregular shape of their bodies and by broken colour patterns. Both adults and young ambush bugs grasp their victims with strong front legs. They then pierce them with beaks through which they inject a fluid that usually kills the prey instantly; it may also dissolve the muscles and other internal organs. Then the bugs suck out the body fluids. How much an ambush bug eats in the wild is unknown but each pair of bugs in a cage were supplied four house flies per day.¹ Photographs of ambush bugs feeding on flies appear in two of the books listed below.^{3 6}

While preferring no special colour in flowers, these bugs seem to select those rich in pollen or nectar, or both



Skipper, two cabbage butterflies and an alfalfa butterfly with wings down as they die killed by the five ambush bugs above them. Ruler is in inches and centimeters.

Gary Gent

because of the large numbers of other insects attracted. They are most abundant where such flowers occur in profusion throughout the season, so that an individual plant or a species tops blooming, neither nymph nor adult will have far to move. Spiders may be the major enemies of ambush bugs.¹

These bugs were near the end of their 1974 life cycle. The females were probably almost finished laying their $50 \pm$ eggs over a 3-month period, peaking in August and September. The eggs are laid in masses of 10 to 20 on the plants used to trap their prey. The females die within a month of laying their final eggs. While all overwintering is by eggs, embryos begin developing as soon as the eggs are laid but stop at an advanced stage so that they will not hatch until May or June

of the following year. The nymphs, resembling miniature adults, undergo four molts during the 6 weeks it takes them to mature. Within 3 weeks, most adult females begin mating and laying eggs for another generation.¹

¹BALDUF, W. V. 1941. *Life History of Phymata pennsylvanica americana* Merlin (*Phymatidae*, *Hemiptera*). Ann. Ent. Soc. American 34:204-214.

²BORRER, D. J., and R. E. WHITE. 1970. *A field guide to the insects of America north of Mexico*. Houghton Mifflin Co., Boston. 404p.

³FARB, PETER. 1962. *The Insects*. Life Nature Library. Time Inc., New York. 192 p.

⁴HOOPER R. R. 1973. *Butterflies of Saskatchewan*. Saskatchewan Department Natural Res., Regina. 216 p.

⁵SWAIN, R. B. 1948. *The insect guide*. Doubleday and Co. Garden City, N.Y. 261 p.

⁶TEALE, E. W. 1972. *The junior book of insects*. E. P. Dutton & Co., New York. 266 p.



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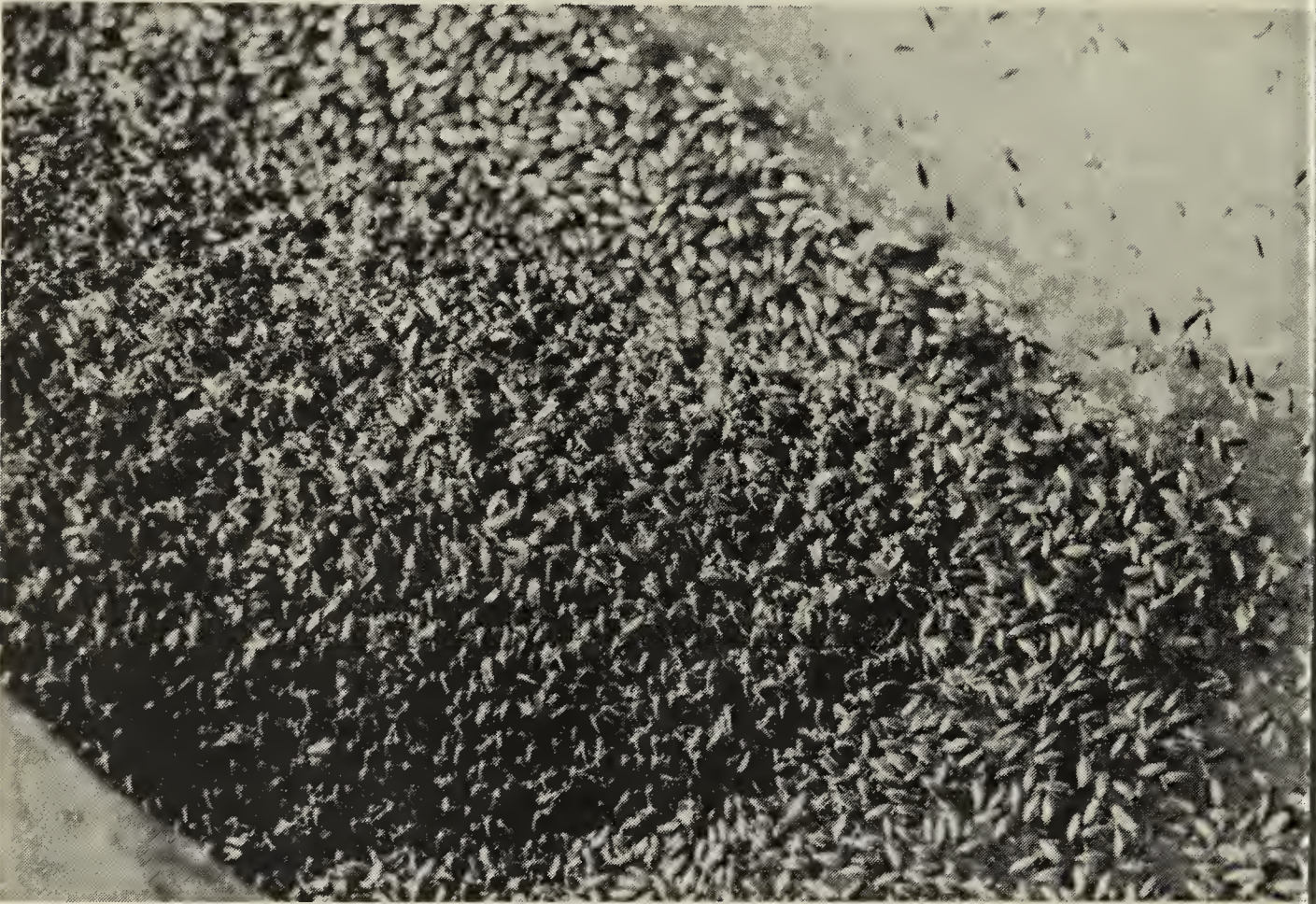
NAMES IN NATURE — GERANIUMS AND CRANES — Even the most familiar of the garden flowers may have names which do not seem to explain themselves. Take the geranium, for example. On the surface there may not appear to be close relationship between the geranium and the powerful hoisting cranes used for lifting locomotives and other heavy articles. Consultation with the authorities shows, however, that the flower and the massive mechanical device derived their names from a single source. The origin of "geranium" was the Greek word "geranos", meaning the "crane" of the Class Birds. The flower took its name from the fact that its seed capsules have a long, projecting beak-described as "a beak-like torus or receptacle around which the seed capsules are arranged." The resemblance to the beak of a crane causes the geranium to be commonly known as "crane's bill," and sometimes as "stork's bill". The mechanical "crane" took its name from the resemblance of its long arm to the neck of the bird known as the crane.

From *Nature Magazine*. 1924.

NAMES IN NATURE — BUMBLE-BEE — The name of the common bumble-bee has brought forth many discussions. Some people insist that the word should be "humble-bee", while others, more precisely scientific, demand "bombus-bee." There is no reason for the advocate of either spelling to apologize. The bee belongs to the genus *Bombus* and the name of the genus is derived from the Greek "bombos", translated into English as meaning "a buzzing noise". Skeat, the distinguished etymologist, defines the bumble-bee as "a bee that hums", and adds that the verb "bumble" is from the old Dutch "bommelen", a verb which means to "to buzz", or "to hum", and which he says is akin to the word "boom" as applied to a "booming" sound. "As both boom and hum signify to buzz", explains Skeat, "the insect is called indifferently a bumble-bee or a humble-bee."

From *Nature Magazine*. 1924.

WATER BOATMEN



Water boatmen on rock. Blackstrap Reservoir. April 19, 1975.

Bernard Gollop



Water boatmen (Corixidae) congregating on water and rocks between snow (foreground on causeway and ice (background) on Blackstrap Reservoir, Saskatchewan, April 19, 1975

Bernard Gollop

BUTTERFLIES FROM THE SOUTHEASTERN MACKENZIE DISTRICT, N.W.T.

by WAYNE C. HARRIS*



Upland Lichen woodland with Black Spruce, White Spruce,
scattered Paper Birch and Jack Pine.

The following notes were collected while in the southeastern part of the District of Mackenzie from June 3 to August 16, 1974. During this time four areas were visited: Porter Lake (108° 0', 61° 41') from June 5 to July 3, Snowdrift (110° 48', 62° 24') from July 4 to July 20, Forestry Lake (105° 30', 60° 56') from July 24 to August 10 and Mt. Smith (111° 52', 60° 00') from June 3 to 5, July 3 to 5, July 20 to 24 and August 15 and 16.

Snowdrift, Porter Lake and Forestry Lake are located on the Precambrian Shield in the Northwestern Transition Boreal Forest Region.² This is the forest edge bordering the tundra in which areas of bog, muskeg and barren rock are intermixed with open stands of Black Spruce (*Picea mariana*) with lesser amounts of Jack Pine (*Pinus banksiana*), Tamarack (*Larix laricina*), White Spruce (*Picea glauca*) and Paper Birch (*Betula papyrifera*). Ground cover is characteristically light coloured lichens, of which *Cladonias*,

*Box 93, Raymore, Sask. S0A 3J0



Study area and collection sites.





Canadian Tiger Swallowtail (x 1.0)

Wayne C. Harris

Tetrarias and *Stereocaulons* are the dominants.²

Ft. Smith, located just off the southern edge of the Shield, is in the Upper Mackenzie Forest Region.² A closed canopy of White Spruce, Trembling Aspen (*Populus tremuloides*) and Black Pine occurs on the uplands with Black Spruce being the dominant in lower areas.

Butterflies were uncommon in this region. Almost all of the species noted were found in the month of June and observations were almost non-existent in July and August. Butterflies may be uncommon here because of a lack of suitable plants to feed on.

Temperatures were about normal for the summer, with the average high 55-70°F. Precipitation was above normal for the summer.

I would like to thank E. Johnson and J. Lamont for their assistance in preparing this note and R. Hooper for his assistance in identifying the specimens.

Annotated List

A total of 13 species was recorded during the summer; specimens were not collected of all species. However, an individual was caught, identified and released for all species reported here. The nomenclature follows *Butterflies of Saskatchewan*.¹ This was also used for identification of all the species found. Species for which a specimen was collected are marked with an asterisk (*).

***PERSIUS DUSKY WING** (*Erynnis persius fredericki* Freeman). On June 5, two individuals thought to be this species were seen at Ft. Smith. On July 11 a single specimen was collected at Snowdrift. Habitat at Fort Smith was a grassy hill along the Slave River with Trembling Aspen and White Spruce. At Snowdrift it was seen on a moist north-facing slope vegetated with White Spruce and a ground cover of Feather Moss (*Pleurozium schreberi*).

CANADIAN TIGER SWALLOWTAIL
(*Papilio glaucus canadensis* Rothschild)



Purple Lesser Fritillary (x 1.85)

Wayne C. Harr

and Jordan). A single individual at Ft. Smith on June 5 and two along a sandy beach at Porter Lake on June 19 were the only sightings.

PALAENO SULPHUR (*Colias palaeno chippewa* Edwards). This species was observed once at Porter Lake on June 27. The habitat was an area which had been burned in 1972 along a bedrock ridge at least 500 meters from the nearest bog or meadow.

* **SILVERY BLUE** (*Glaucopsyche lygdamus couperi* Grote). A group of five was seen at Ft. Smith on June 5. A single specimen was collected. The only other record was of two seen at Porter Lake on June 11. In both locations this species was found in small open areas surrounded by Black Spruce and White Spruce with a ground cover of lichens and with no flowers in the immediate vicinity.

* **SPRING AZURE** (*Celastrina argiolus lucia* Kirby). This species was recorded intermittently at Porter Lake from June 11 to June 20 with a maximum of

four seen on one day. Single specimens were collected at Porter Lake on June 11 and June 20. The habitat was small clearings along an esker vegetated with Black and White Spruce. Prickly Saxifrage (*Saxifraga tricuspidata*) was the common flower.

WHITE ADMIRAL (*Limenitis arthemis rubrofasciata* Barnes and McDunnough). The only record was a single individual observed at Forestry Lake on August 2. Habitat was a sandy esker vegetated with mature White Spruce.

RED ADMIRAL (*Vanessa atalanta* Linnaeus). On June 27 one visited the buildings around our camp at Porter Lake. This individual was observed throughout most of the day as it flew around the edges of a small bog vegetated with *Sphagnum* and a flowering Labrador Tea (*Ledum decumbens*). The only plant species which it was observed landing on was Labrador Tea. The known food plant, Stinging Nettle (*Urtica gracilis*)¹, is not found in the Porter Lake area.



White Admiral (x 1.6)

Wayne C. Harris

MILBERT'S TORTOISE SHELL (*Nymphalis milberti* Godart). A single specimen was collected at Fort Smith on June 5 in a small grassy clearing.

MOURNING CLOAK (*Nymphalis antiopa* Linnaeus). Single individuals were seen at Porter Lake on June 14 and June 19. The habitat for both was a fast flowing small stream bordered by Black Spruce. The only other observation was of a single individual seen at Forestry Lake on July 31 along a sandy esker.

GREEN COMMA (*Polygonia faunus* rusticus Edwards). This species was seen only at Porter Lake. On June 21 several were observed along a small spring flowing through the boulders under a mature White Spruce canopy.

FRIEJA FRITILLARY (*Boloria freija* Hünberg). This was by far the most common butterfly species found in the area. Scores were seen at Porter Lake on June 12 and this species remained common for the remainder of June. Three specimens were collected on

June 11 and one on June 19. Habitat in all cases was dry uplands along sandy eskers or bedrock outcroppings.

***PURPLE LESSER FRITILLARY** (*Boloria titania grandis* Barnes and McDunnough). A single specimen was collected at Porter Lake on August 13 on an esker vegetated with open White Spruce and a lichen ground cover.

***MANCINUS ALPINE** (*Erebia disa mancinus* Doubleday). Small numbers were seen at Porter Lake in Black Spruce bogs. On June 11 a single specimen was collected and the next day three more were seen at the same location. At a different location on the lake on June 19 one was found dead and several others seen.

¹HOOPER, R. R. 1973. *Butterflies of Saskatchewan*. Sask. Dept. of Natural Resources, Regina 216 pp.

²ROWE, J. S. 1972. *Forest Regions of Canada*. Dept. of the Environment, Canadian Forestry Service, Publication No. 1300. 172 pp.



SOME SOUTHERN ALBERTA ANIMALS — 1974

by WAYNE W. SMITH*

While engaged in biological research during the spring and summer of 1974, observations of some interest to naturalists were made. Most of the observations come from the Lost and Milk Rivers in and near the Pinhorn Grazing Preserve of extreme southern Alberta. Other observations came from the Middle Sand Hills (Empress area), Hand Hills (northeast of Drumheller) and the Waterton Lakes National Park area.

BIRDS

RED-NECKED GREBE: One pair with a nest containing (at least) several eggs was found in a roadside pond near Mountain View (June 11). This area is on the eastern edge of the front range of the Rocky Mountains near Waterton Lakes National Park. Red-necked Grebes have only seldomly been reported as nesting in the foothills and mountains.

FERRUGINOUS HAWK: Despite intensive field work, only one active eyrie was found in the Lost River-Milk River area. Numerous old and deserted eyries were found, e.g., 40+ in several miles of one large coulee. It appears that the scarcity of these birds is correlated with the apparent absence of ground squirrels in the area. It is interesting to note that the one occupied eyrie was close to the cultivated fields of northern Montana and contained the remains of the only ground squirrel seen in the Pinhorn.

GOLDEN EAGLE: In contrast to Ferruginous Hawks, Golden Eagles

were comparatively common. Four active eyries were found in coulees leading into the Milk River. Each eyrie contained either one or two young towards the end of the fledgling period. This indicates a fair reproductive success. Each eyrie was built on a relatively inaccessible cliff with a commanding view. It appears that the staple food item was Cottontail Rabbits which were common.

MERLIN: Three Merlin eyries were found in 5 square miles of aspen groveland in the Hand Hills near Little Fish Lake. This seems to be a relatively dense population for a raptor species whose population has declined drastically in the last little while. Each of the three eyries contained at least 3 young; one contained 5 young. It appears that the high passerine population of this area may be one factor explaining the relatively high density of Merlins.

PIPING PLOVER: One pair was present through the summer on the west end of Little Fish Lake. Although no nest was found, nesting was definitely indicated.

BLACK-BILLED CUCKOO: This seldom seen bird appeared to be quite common in a small stretch of the lower Red Deer River near Empress. At least 3 males were observed during the summer, and one immature was noted in mid-July. One male was also heard in the Hand Hills on July 11.

BURROWING OWL: Despite intensive searching of vast tracts of grassland, only 2 pairs of Burrowing Owls were seen during the summer. Both pairs were in the Middle Sandhills region near Hilda. Both pairs were apparently occupying nesting holes.

WILLOW FLYCATCHER: One male was observed, apparently occupying a territory in a dense willow-rose tangle along a

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small creek heading into the north end of Little Fish Lake. This was on June 19. Several weeks later there was no sign of this individual.

VIOLET-GREEN SWALLOW: One nest was found June 10 in a steep coulee leading into the Milk River. The presence of several more pairs in other coulees seems to indicate a thinly distributed nesting population throughout suitable areas of the Milk River valley. This population may derive from birds following the Milk River downstream from its source in the Montana Rocky Mountains; or may result from a nesting population in the nearby Sweetgrass Hills of Montana.

BLACK-THROATED GREEN WARBLER: Three ringing males were found June 16 in Waterton Lakes National Park. They appeared to be on territory. This species is seldom found in the mountains, but is apparently a scarce summer resident in Waterton (park checklist of birds).

NORTHERN ORIOLE: Fairly large numbers were found in the cottonwood stands of the Milk River valley. This population appeared to be equally divided between the Baltimore and Bullock's forms. Also, numerous hybrids covering a wide spectrum of characteristics between the parent forms were observed.

BLACK-HEADED GROSBEAK: Several males were observed along a river valley in Waterton Lakes National Park during June. Several males were also observed in cottonwood stands in the Milk River valley during the summer.

GRASSHOPPER SPARROW: This species was found to be quite common in some areas of the Middle Sandhills. Areas where they were found ranged from near Empress to near Hilda. It appears that this species was associated entirely with the rolling sandhills vegetation of this area.

MAMMALS

YELLOW-BELLIED MARMOT: Only one was observed in a coulee leading into the Milk River on May 3. Other areas of suitable rocky outcrops apparently

contained no Marmots. It may be that the population is still too thin to occupy all available habitat.

BUSHY-TAILED WOOD RAT: Active dens were noted throughout badland sections of the Lost and Milk Rivers.

THIRTEEN-LINED GROUND SQUIRREL: One was observed at Del Bonita (SW Alberta) June 12 and two were observed in the Middle Sandhills near Empress June 24. This ground squirrel appears to be quite scarce in southern Alberta.

BOBCAT: This species appears to be thinly distributed throughout the Milk River valley, primarily in badland sections. Tracks were noted frequently, while one was heard screaming in mid-summer.

RED FOX: This species appeared to be quite scarce in the Milk River valley. Only an occasional set of tracks were noted, while one was seen near Aden in cultivated fields.

WOLVERINE: Two sets of tracks were seen high in the Carthew pass area of Waterton Lakes National Park on July 28. Apparently wolverines are still present in this region of the Rocky Mountains, but in small numbers.

REPTILE

SHORT-HORNED LIZARD: One was found on the edge of the Milk River valley on May 1. Despite intensive searching, no other sites were found. During late June and early July, as many as 8 individuals of various sizes were found at this one site. Besides being very locally distributed, indiscriminate collecting appears to have contributed to the scarcity of Short-horned Lizards.

SPIDER

NORTHERN WIDOW SPIDER: On July 2, one female was found in the mouth of an old Coyote burrow along the Lost River. This species has the typical red hour-glass shaped pattern on the lower abdomen, and appears very similar to the closely related Black Widow Spider.



WILDLIFE ROAD KILLS

by JAMES DONOVAN*

In the past, I have often wondered how great was the loss of wildlife to collisions with automobiles. Finally in 1974 while living at Broadview and working in Whitewood I had the opportunity to make some observations on the extent of road kills. During the last half of June I observed an increased number of road killed animals, and decided for the month of July I would count and record the numbers and species of road killed animals. Table 1 represents observations from my twenty trips (28 miles each day) during July, 1974.

Of the Richardson's Ground squirrels hit by cars nearly all were young-of-the-year, and 18 of the 37 were killed on only two days (approximately 1 week apart). In both cases, there had been a light shower during the day or evening previous.

The two coyotes were found about 100 yards from each other but not on the same day. The two porcupines,

skunks, grackles and the three Crows seemed to suffer the same fate at certain places along the highway but on different days.

The unidentified birds and mammals were in most cases little more than blotches on the highway. They were difficult or impossible to identify more accurately than bird or mammal.

This list totals 112 individuals but there may have been a great many more that were hit and killed or injured but not observed. Many, no doubt, were knocked off the road and never counted; or disintegrated, were eaten before being observed; or were lodged in car grilles.

If one were to determine the number of miles of primary and secondary road in western Canada and use the table of road kills I have presented (or some fraction of it), an estimate of highway mortality of wildlife would be in the millions for any one year.

Table 1. Road kills near Whitewood, Saskatchewan

Richardson's Ground Squirrel	37	Kingbird	2
Thirteen-lined Ground squirrel	2	House sparrow	8
Franklin's Ground squirrel	1	Canary?	1
Fox	1	Small unidentified mammals	
Coyote	2	(mouse size)	7
Porcupine	2	Small unidentified birds	
Skunk	2	(sparrow size)	15
Jack rabbit	3	Grackle	2
Crow	3	Hereford Cow	1
Mallard	1	Dog	1
Pintail	1		
TOTAL			2

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RED FOX PREDATED BY SNOWY OWL

by CHARLES C. DIXON*

On December 19, 1974, on River
at 417 in the Rural Municipality of
Morris, Manitoba, I observed a female
Snowy Owl that had apparently at-
tacked and killed a male Red Fox.
When first observed at about 10:00
a.m. the owl was sitting on the ground
roughly 5 feet from the fox. The fox
carcass was still warm and bleeding.

The fox, an adult male, in excellent
physical condition (10 lbs., 14 oz.)
died from massive hemorrhaging in
the lumbar (kidney) and cervical
(neck) regions. I recorded 63 talon
injuries in the dorsal and 21 in the
ventral areas of the fox carcass. There
was no evidence that the owl attempt-
ed to feed on the kill or was in any
way injured during the engagement.

The habitat was a lightly snowed
alfalfa field several hundred yards
from a hydro line commonly used as a
hunting area by Snowy Owls. The closest
body cover is 3/4 mile east on the
banks of the Red River.

David Hatch in *Chickadee Notes*
(Dec. 21, 1974, Winnipeg Free Press)
documents the earliness and per-
sistence of Snowy Owl migrations
through Manitoba in the last several
years. He notes Eskimo references to
predation on the much smaller Arctic
fox by Snowy Owls. Predation on Red
fox, however, must be rare.

Editorial Note: The following received
from David R. M. Hatch provides
useful additional information and

speculation on this unusual obser-
vation.

"There is a great deal of variation in
the status of mouse populations within
the province. In some locations, par-
ticularly the boreal regions of
southeastern Manitoba, mice are abun-
dant. In the neighbouring Red River
valley just the opposite is true. Man-
made causes are the main reason for
this dearth of mice. The land in this
region is intensively farmed for the
production of cereal grains and special
crops. The fall of 1974 was drier and
milder than normal and, consequently,
the farmers were able to turn under all
their stubble. There are virtually no
fields that were not worked last fall.
This means that habitat for mice is at a
premium and about the only place they
can live is along the road allowances.
Definitely there is a shortage of
rodents on which Snowy Owls can prey
within the entire Red River flood
plains and this probably explains why
the owl attacked such large prey.

"I speculate that the actual cause of
death was the hemorrhaging of the kid-
neys. It is also important to note that
the fox was a fat specimen and showed
no signs of a previous injury, such as
broken bones from hitting a vehicle or
lead from being shot. If the fox had
sustained previous injury, then it
would have been more prone to attack
by an owl.

"Finally, I am not surprised that the
owl had not as yet fed on the fox. In all
likelihood there was a tremendous
struggle between owl and fox and I
suspect the owl was temporarily
resting before commencing to feed. I
have seen Snowy Owls sit on jack rab-
bits or even mice for several minutes
before starting to feed. I suspect this
owl was doing the same and was in-
terrupted before it had the opportunity
to commence its feast."

Editorial Note: An observation of
another encounter between a Snowy
Owl and a Red Fox made only 17
miles west of Morris may provide the
basis for interpreting the successful
predation described by C. C. Dixon.

Resources Project,
Dept. Mines, Resources and
Environmental Management,
301 Ellice Ave.,
Winnipeg, Manitoba.
3G 0G1



Red Fox.

Ken Lum

SNOWY OWL PURSUES RED FOX EXHAUSTED BY SNOWMOBILER

by KEITH EMBERLEY*

On January 29, 1975, at approximately 3:20 p.m. I noticed a snowmobiler chasing a Red Fox. This was 6 miles south and 1 mile west of Kane, Manitoba (17 miles west of Morris). The weather was clear and cold with a temperature of about 0°F and a 10 MPH wind from the N or NW. The fox had come across a sec-

tion road and I estimated it had been running for a good half mile or more. On noticing my stopped car the snowmobiler took off to the west. I continued watching the fox from the east road with binoculars. The fox gradually stopped running after entering a cultivated field and remained very still, apparently exhausted by the chase. Then I noticed a male Snowy Owl come into view and make a pass about 5 feet over the fox. The fox raised itself and the owl then flew east toward my car; it perched on a telephone pole. The fox began to move off south, stopping and resting at approximately 50-foot intervals. As it did so, the Snowy Owl started soaring along a telephone line, landing a number of poles further down, following the fox. Both fox and owl finally went out of my view.

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A.O.U. MEETING IN WINNIPEG

The 93rd annual meeting of the American Ornithologists' Union (A.O.U.) will be held on the University of Manitoba campus from Monday to Friday, August 25 through 29, 1975. The A.O.U. is the oldest and largest professional ornithological society in the Western Hemisphere and it is thus a great honour for us to be able to host its annual meeting in Winnipeg. This will be only the second time that the meeting has been held in western Canada; the first was in Regina in 1959.

Experts in all aspects of ornithology from all over North America and probably from several foreign countries — artists, lecturers, photographers, researchers, conservationists — will be on hand to discuss the latest discoveries and advancements in the study of birds. This is an opportunity to rub elbows with one of the foremost ornithologists of our time. Yes, Roger Tory Peterson will probably be here!

WHO MAY ATTEND: All ornithologists, birdwatchers and naturalists are invited to register and attend this meeting. One need NOT be a member of the A.O.U. in order to attend. Too scientific? Not so! The role of the amateur in the field of ornithology, both past and present, is continually being emphasized. All activities (except business sessions) are open to non-A.O.U. members. There will be a registration fee of \$8.00 (\$12.00 for a married couple) and a charge of \$4.75 for the banquet.

PLACE: University Centre in the middle of the University of Manitoba campus.

PROGRAMME: SUNDAY, August 24: Registration in late afternoon and early evening. MONDAY, August 25: Registration (all day); business meetings for Council Members, fellows, Elective Members; all-day field trip to Delta Marsh and Delta Waterfowl Station (leaving 9:00 a.m.):

afternoon field trip to Oak Hammock Marsh (leaving 1:30 p.m.); get-acquainted hour at 8:30 p.m. TUESDAY, August 26: Registration (all day); papers being given all day; activities for wives of delegates; tour of the David Loch gallery of wildlife art in St. Vital; information reception in University Centre in evening. WEDNESDAY, August 27: Registration (all day); papers given all day; ornithological films at 8:30 p.m. THURSDAY, August 28: Papers all day; annual banquet at 7:00 p.m. FRIDAY, August 29: All-day field trip to Hecla Island (leaving at 7:30 a.m.).

Arrangements are being made for local bird trips each morning before the sessions start.

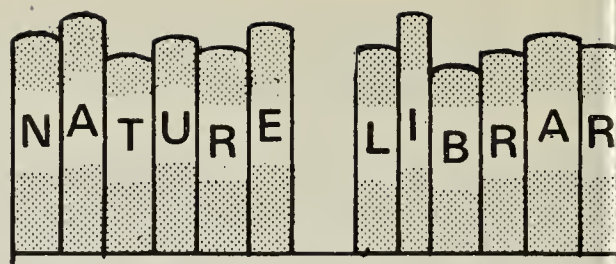
For preregistration forms and other information, please contact Dr. Spencer Sealy, Chairman, Local Committee on Arrangements, Department of Zoology, University of Manitoba, Winnipeg.

30 Years Ago

The April-May-June, 1945, *Blue Jay* contained 10 8-1/2 X 11 mimeographed pages. Some of the items from it were:

Judge L. T. McKim of Melville recalled rare birds he had seen over the previous 20 years. He also noted that the "first pair of Arkansas Kingbirds appeared in Melville in 1924, and for four years running, nested behind a can on an electric light pole at the back of our yard . . . These kingbirds are now quite common here and are reported much further north than Melville" . . . Dick Beddoes conducted a Christmas Bird Count on Dec. 28, 1944, at Daysland, Alberta; he remarked "that the Sharp-tailed Grouse is down in numbers and that, for the first time since he has been making Christmas Censuses, he did not see a single true Prairie Chicken" . . . H. H. Pittman of

Wauchope reported that two pairs of orioles built nests and then disappeared. "Shortly after this I noticed a kingbird perched beside one of the oriole nests and found that another kingbird was actually inside the nest. There were, however, no eggs in this nest. A few days later we saw the kingbirds at the other nest and found it contained four eggs. These were hatched in due course and I was able to get a series of pictures of the Eastern Kingbird feeding its young in the nest of the Baltimore Oriole" . . . R. C. Mackenzie reported on tapping Manitoba Maples along the Carrot River to collect syrup and make sugar . . . On hibernating frogs: "one spring Mrs. Marion Nixon disturbed an old hot bed, and huddled there at the junction of soil and manure were about twenty small Swamp Tree Frogs. The ground was still partly frozen and some of them were still encased in icy soil — but just as soon as a clod became broken to expose a leg, that leg would start wiggling, flexing rhythmically and slowly, and soon the owner would squirm his whole body free". . . What happens to dead skunks? C. Fehrenbach of Saltcoats wrote that "A few years ago he shot a skunk about six feet from a small culvert. The body lay around for some days and then it too disappeared leaving only a slight depression in the grass where it had lain. But near the opening of the culvert Mr. Fehrenbach noticed that the soil had been disturbed as if some animal had been scratching there, so he looked inside, and there was another skunk, rolling, tossing and throwing his dead friend around. The next day when Mr. Fehrenbach returned to the spot there was "no sight or sound of either animal dead or alive. Has anyone, he asks, ever come across a similar occurrence?" . . . An account of banding done by George H. Lang at Indian Head covers a total of 6,208 birds between 1923 and 1939, including 1,662 Robins, 859 Black-crowned Night Herons and 85 Burrowing Owls . . . Early dates for bats were supplied by J. D. Ritchie of Wallwort: May 14, 1931; May 10, 1932, and May 7, 1934.



SILTON SEASONS

From the Diary of a Countryman

By. R. D. Symons

Published by Doubleday Canada Ltd.

105 Bond Street,

Toronto, Ontario, M5B 1Y3

200 pp. January 1975. \$7.95

No, Mr. Symons, neither your spirit nor your pen has faltered in worthily presenting your observations of a life spent with joy and beauty. (Answer to last paragraph of Preface.)

Many millions of persons have more knowledge, scientific or otherwise, than R. D. Symons, but few more have the gift of wisdom he possesses.

"Silton Seasons" consists of a twelve month excerpt from Symons' diary, written after retirement from an interesting but hard, rugged life. It carries us through a year, month by month — each chapter a joy to anyone interested in nature whether birds, mammals, plants, trees or the wonder of clean air and glorious skies. Symons' descriptive writing is superb in its simplicity, and his obvious love and knowledge of all things wild and natural will continue to thrill any nature lover, at the same time creating awareness in those whose thoughts have not yet awakened to the joy and beauty surrounding us.

However, "Silton Seasons" is more than a nature book. Each chapter displays a wealth of prairie history actually experienced by the author. Nostalgia for the old days is ever present yet he is sufficiently wise to realize that time cannot stand still — machinery displaces the horse, populations grow, methods of travel have changed the whole world. Although all these things have to a great extent contributed to spoiling the land he loved, he seldom shows bitter-

ss, but often one feels his scorn for the stupidity of man in his disregard for the wild creatures and the environment — the misuse of snowmobiles being one infuriating fact which brings forth a torrent of scathing words.

Mr. Symons had great respect for the early settlers, knowing first hand the terrific hardships and steady back-breaking work they experienced. He discusses them at length throughout the book, mentioning the many nationalities of these people and the harmony which eventually grew between them — helping one another, saving one another, and enjoying "home-made" entertainment in the off-season leisure time (leisure which is mighty short by our standards). Symons' tremendous respect for the Indians and their old way of life — his

regret and sorrow for their present plight shows up in most of his writing and is certainly strongly put forth in "Silton Seasons".

Symons was a well read man, a philosopher, historian, nature lover and artist with both brush and words. The only fault I find in this book is the dearth of his delightful drawings, but this is understandable since it was published after his death. I strongly recommend "Silton Seasons" to all readers except the "skimmers". One should read this book slowly and in a reasonably quiet atmosphere in order to absorb the deep thoughts and descriptions therein. It is a beautiful and thought provoking book.

Gloria in excelsis — quote p. 176. —
Pat O'Neil, 1125 Elliott Street,
Saskatoon, Saskatchewan.

READING ABOUT PLANTS AND WILD FLOWERS

by DIANE SARICH*

Plants have a very practical value as well as being beautiful. Life could not exist without them. Public libraries have many books on plants but the following is a list of general books which would provide a basic introduction to the study of plants. (Call letters are for the Saskatoon Public Library.)

OLD, Harold. *The plant kingdom*. 2nd ed. 1964. 118 p. The basic biological similarities of plants as shown through a comparison of their reproduction and structure.

580 B687.

WIDLING, Ware. *Performing plants*. 1969. 104 p. Peculiarities of particular plants such as the response of some to certain stimuli, plants that heal, plants that eat insects, and other unusual behavior.

Y 581 B927.

TURNER, Edred. *The life of plants*. 1964. 104 p. The evolution of plant life — how plants have modified their structures and functions to meet the challenge of a new environment.

581 C815.

GABB, Michael. *The world of plants*. 1966. 160 p. The life processes of plants in general, the structure and life cycle of flowering plants, and the classification of plants.

Y 581 G112.

MILNE, Louis. *The nature of plants*. 1971. 106 p. An introduction to the plant kingdom emphasizing the many individual types of plants, their reproduction, genetics, and their relationship to the larger world around them.

Y 581 M659n.

NORTHEN, Henry. *Ingenious kingdom: the remarkable world of plants*. 1970. 274 p. The classification, evolution, ecology and behavior of plants.

581 N874.

RAVEN, Peter. *Biology of plants*. 1970. 706 p. An excellent introduction to the study of plants including sections on plant development, soil and water relationships, genetics and ecology.

581 R253.

Saskatoon Public Library,
1st St. and 4th Ave.,
Saskatoon, Saskatchewan.

TOMPKINS, Peter. *The secret life of plants*. 1973. 402 p. The world of plants and their relation to mankind as revealed by the latest discoveries of scientists of many disciplines.

581 T662.

TRIBE, Ian. *The plant kingdom*. 1970. 159 p. Distinctive specimens from the 300,000 members of the plant family describing the outstanding characteristics of the major groups.

581 T821.

VALLIN, Jean. *The plant world*. 1967. 108 p. The structure, vegetative system and life of representatives of many of the major plant groups.

581 V188.

WIT, Hendrik. *Plants of the world*. 1966-67. 2 vol. A two volume series which describes 261 plant families, represented by some 4,500 species.

R 581 W819.

The world of plants. 1965. 158 p. A comprehensive picture of man's attempts to understand, control, and use the fascinating world of plants.

581 W927.

NOVAK, Frantisek. *The pictorial encyclopedia of plants and flowers*. 1966. 589 p. The fantastic variety of plants as revealed through 1,120 photographs.

EDLIN, Herbert. *Atlas of plant life*. 1973. 128 p. A continent-by-continent review of the world's wild and cultivated plants.

581.9 E23 (Another copy in reference).

CALDWELL, Robert. *Guide to Saskatchewan marsh plants*. 1962. 77 p. An aid in identifying some of the aquatic plants of Saskatchewan and neighbouring provinces.

R 581.92971 C147.

Saskatchewan Museum of Natural History, Regina. *Common marsh plants of Saskat-*

chewan. 40 p. Some of the most conspicuous and typical aquatic, semi-aquatic and damp soil terrestrial wild flowers of Saskatchewan.

R 581.92971 S25

MONTGOMERY, Frederick. *Native wild plants of eastern Canada and the adjacent northeastern United States*. 1962. 193 p. Accurate details about all the more common species of wild flowers and plants of the region.

R 581.971 M78

MONTGOMERY, Frederick. *Plants from sea to sea*. 1966. 453 p. A practical and authoritative guide to over 1500 species of plants found coast to coast in Canada.

581.971 M787p (also ref)

MOSS, Ezra. *Flora of Alberta*. 1959. 546 p. A complete manual of native flowering plants, conifers, ferns and fern allies found in Alberta.

581.971 M913 (Another copy in reference)

BOIVIN, Bernard. *Flora of the Prairie Provinces*. 1967. A handbook to the flora of the provinces of Manitoba, Saskatchewan and Alberta.

R 581.9712 B68

Canada National Museum. *Illustrated flora of the Canadian Arctic archipelago*. 1967. 218 p. A guide to the 340 species and major geographical races of flowering plants and ferns of this area.

R 581.97122 C21

NELSON, Ruth. *Handbook of Rocky Mountain plants*. 1969. 331 p. How to identify the plants of this region in simple botanical terms.

581.973 N42

FERNALD, Merritt. (ed.) *Gray's manual of botany*. 1959. 1632 p. A handbook of the flowering plants and ferns of the central and northeastern United States and adjacent Canada.

R 582 G7

One small group of plants which are very plentiful at this time of year are wildflowers. The following books provide general information on wildflowers as well as detailed descriptions of those found in this area.

CARMICHAEL, Lloyd T. *Prairie wildflowers*. 1961. 186 p. The endless variety of wildflowers found in the Canadian Prairies arranged according to when they bloom.

582.13 C287 (Another copy in reference).

CRAIGHEAD, John. *A field guide to Rocky Mountain wildflowers from northern Arizona and New Mexico to British Columbia*. 1963. 277 p. An identification guide to over 590 of the species of flowering plants found in the Rocky Mountain region.

582.13 C886.

STRINGER, Michael. *Wild flowers*. 1961. 61 p. Sixty species of wild flowers with world distribution are illustrated with detailed full-colour drawing and a brief descriptive text.

SPERKA, Marie. *Growing wildflowers a gardener's guide*. 1973. 277 p. Detailed instructions on the planting and propagation of more than 200 species of wildflowers.

635.9676 S7

ERARD, Barbara. *Wild flowers of the* 1970. 432 p. The special features of major botanical regions of the world illustrated by some distinctive characteristic, or otherwise interesting plants.

582.13 E93.

MMON, Robert. *Wildflowers of North America in full colour*. 1961. 180 p. How to identify and appreciate the lore associated with hundreds of typical wildflowers selected from five natural growing areas of North America.

582.13 L554 (Another copy in reference).

NNING, Stanley. *Systematic guide to flowering plants of the world*. 1965. 302 p. Arranged under orders and families, concise but adequate details of nearly 400 species forming a representative cross-section of the world's flowering plants.

R 582.13 M284

TERSON, Roger. *A field guide to wildflowers of northeastern and northcentral North America*. 1968. 420 p. A visual approach to almost 1300 species of wildflowers arranged by colour, form and habitat.

582.13097 P485.

ada. Department of Agriculture. *Wild plants of the Canadian prairies*. 1964. 519 p. A easily understood guide to approximately 1200 wild plants of the Prairie provinces.

R 582.130971 C212.

ada, Department of Agriculture. *A key to the plants of the farming and ranching areas of the Canadian prairies*. 1953. 339 p. A field reference book to approximately 1,200 species of native plants of the Canadian prairies.

R 582.130971 C212K.

MILL, Catherine. *Canadian wild flowers*. 1902. 86 p. A reprint of the 1868 edition. The text is spiced with quaint botanical terminology and frequent quotations from nature poetry.

582.13 T766 (Another copy in reference).

Wild Flowers: Banff, Jasper, Kootenay, Yoho National Parks. 1972. 72 p. How to identify shrubs and wild flowers most common in all four National Parks.

R 582.1309711 W668.



Tow-headed Blackbird

Angus Shortt, Ducks Unlimited

TENENBAUM, Frances. *Gardening with wildflowers*. 1973. 224 p. Clear, easy-to-follow directions for creating a natural effect using native plants.

MACKENZIE, Katherine. *Wild flowers of Eastern Canada*. 1973. Unpaged. Simple, non-technical information about the wildflowers of Ontario, Quebec, and the Atlantic Provinces.

582.1309713 M156.

PARSONS, Frances. *How to know the wild flowers*. 1963. 418 p. A guide to the names, haunts, and habits of some common wild flowers.

R 582.130973 P267.

Letters

CURIOUS BROWNIE

The first indication that bears were living on or near our farm near Medstead, Saskatchewan, was when we went for a walk and noticed logs that had been rolled over. We also began to see where ant hills had been scratched open, probably for a delicious meal. Then one day when I went out to pick blueberries, I discovered a large bear track in the center of a destroyed ant hill.

One Sunday evening we were standing out in the yard and, to our surprise, saw a large brown bear sauntering across the road in plain view of the house.

One evening in October, on glancing out of a window, we saw a brown bear lying in a small pile of spilled barley licking up big mouthfuls of the delicious grain. He was fat and sleek and seemed to be quite relaxed, lying there like a big dog. When all the grain was gone, he sat up on his haunches and looked around. Then he got up and wandered along the yard fence and down the road. Later in the evening we heard the screen door at the back slam, but decided it was the wind.

Next evening, just at sundown, the bear came moseying up the south trail. He licked up some stray grain in the front of the granary and then decided to make a thorough tour of inspection. He strolled across the front of the yard and down along the caragana hedge on the south side. Then he strolled over to a second granary and discovered a veritable bonanza: a red squirrel had gnawed a hole low down in the wall and a pile of grain had poured out. There old Brownie munched and munched until he was full. Next morning we noticed what looked like muddy paw and nose marks on the screen of the back door.

Each evening at sundown we would see him come toward the buildings from the south. We noticed, on examining his tracks, that he always placed his paws exactly in the same prints each time. They were pressed deep in the dry grass.

Wash day arrived and I hung out the clothes, but spread the sheets on the grass for bleaching. Toward evening we decided it would be wise to pick the sheets up off the grass in case Bruin should step on them. As we spread the sheets over the line, the bear was sitting up on his haunches by the granary watching us with ears pricked up and eyes gleaming with curiosity.

About 2 a.m. I awoke suddenly and wondered what had wakened me. Then I heard the back screen door slam shut with a soft slap! I listened, every muscle tense. Again I heard the soft slap of the door and yet again. As quietly as possible, I crept out of bed and went to the window in the kitchen. I peered out and, although I could see plainly in the moonlight, no bear was to be seen. But my lovely clean wash! Clothes were scattered all around on the ground. Some that were still on the line were torn and others smudged with dirt..

We put on the yard light and went out to pick up the mess. One large flannelette sheet was balled up in a flower bed, muddied, with leaves and sticks clinging to it.

Next morning on examining the screen door, we found muddy nose marks and two small holes in the screen where his claws must have pried it.

He came to the granary a couple more evenings after this but then we saw him no more. It was too early for hibernation and we wondered what had happened to our curious friend. — *Evelyn M. Casson, Medstead, Saskatchewan.*

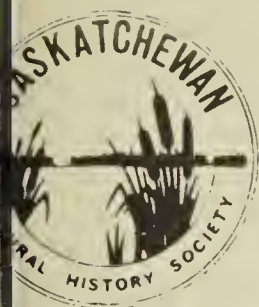
A WHOOPING CRANE EXPEDITION

Six pupils were needed for an expedition with Lorne Scott, who works at the Natural History Museum. We climbed into the van and headed south of Regina. After a few dusty miles we arrived at our destination. With the aid of binoculars we spotted them. And then it happened — they changed positions. We thought . . . how lovely and rare they were. We moved for a second and better view. Our viewing from 1/2 mile distance continued until sunset. As we arrived back in the city and departed for our homes we thought about how fortunate we were to see three of the 49 Whooping Cranes in the wild.

Thank you, Lorne Scott. — *Cathy Argent, Rhonda Senft, Murray Marshall, Randy Mustatia, Grant Seidlick, Jan Thompson, Glen Elm School.*

A DOG'S BEST FRIEND?

The time of the Big Blow, six weeks ago, a young farmer of the Moosomin area, Alex Currie, went into his barn that morning and the old dog got up to greet him. Alex noticed something lying alongside of where the dog had been, thought it was the cat. Upon closer investigation it turned out to be a porcupine, of all things. Dog and porcupine palling up together! — *Ed Symons, Rocanville, Saskatchewan. March 5, 1975.*



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